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The purchase of a controlling interest in the Tom Boy Mining Company of Colorado by the Exploration Company of London has been finally completed and the company has been reorganized by the election of new officers and directors. The fact that the English corporation has taken an interest in a Colorado mine is a good thing for the State, since it really means not only the full development of the mine in question, but further and probably large investments in other mines. Colorado has plenty of good properties to offer, and new capital for that purpose should be welcome.

This transfer is another proof that the Exploration Company, always on the lookout for opportunities, realizes that the United States is the best country to invest in. The great increase in gold output shown last year has had its effect and will doubtless continue to influence shrewd and far-seeing capitalists abroad.

There are signs that a "boom" is being carefully worked up for Alaska, chiefly by the transportation companies which are interested in getting all the work possible in the spring. Alaska showed a considerable increase in gold production last year, and a part of this gain came from the Yukon region, though it is difficult to ascertain exactly what the yield of that district was. There seems to be no doubt that good placer ground has been found at Forty-mile Creek and other localities on the Upper Yukon, and that some parties have secured good returns. A word of caution is needed, however, and prospectors should consider the matter carefully before starting for the far North. The journey is an expensive and difficult one; a full outfit is needed, and it must be remembered that the working season is very short, while the winter is long and severe and the cost of the bare necessities of life is very high. No one ought to undertake the trip unless he is prepared to live through the Arctic winter and support himself through the long idle season. A rush of unprepared and poorly supplied miners to the Yukon country will be inevitably followed by much trouble and suffering next winter.

An increase in the attention paid to Southern gold mines is reported, and it is understood that a number of mining engineers and others have been lately visiting the gold-mining districts of North Georgia and Alabama. In the region about Dahlonega, in Georgia, also, there has been a general revival and many prospectors are at work. It is quite probable that this movement may result in new developments in this region, which has been comparatively neglected in recent years. If the work is conducted on proper lines the State may be much benefited. Careful examination and exploration of properties, proper selection of processes for beneficiating the ores, and adaptation of mills to the work required may result in success in many localities in Georgia and Alabama. In many cases the work done heretofore has been carried on without sufficient capital or proper appliances, on the one hand, and where capital has been obtained, on the other, it has not been judiciously applied. The Southern properties are not usually of high grade, and many of the ores require special treatment. The few conspicuous instances of success have been due to the adoption of methods and processes really suited to each case. There is room for a good deal of expansion in the industry under proper direction.

Some of our more or less illustrious senators, and a few of the ill-tempered jingo newspapers seem to think that a treaty of arbitration with England would be a very good thing provided the Alaska boundary dispute, the Monroe Doctrine, the Nicaragua Canal, and anything else we may think best, should be excluded from its operation.

In fact, while the arbitration treaty should, of course, be binding on Great Britain, it should not be binding on the United States except when we so wished. The jingo New York *Sun* claims that we should not bind ourselves to arbitrate our difficulties with England, but should wait until that hateful country gets into war with other European nations, as this luminous exponent of barbarism expects and hopes she will do within a few years, and then we can take advantage of her difficulties and make her pay liberally for peace with us.

According to these enlightened authorities arbitration is all right when it is strictly stipulated that it is "heads I win, tails you lose." This might be expected of a benighted barbarian of South Africa, but is wholly unworthy and insulting to a civilized people, which we Americans claim to be. The United States should set a better example to the civilized world. What is an arbitration treaty good for unless it covers all subjects of dispute?

The copper stocks, which are chiefly dealt in on the Boston Exchange, are receiving a great deal of attention just now, and there has been a rapid increase in prices. In part, this is due to the continued demand for the metal itself in Europe, the high prices which have prevailed for a great part of the past year, and their continued upward tendency at the present time. Thus the average price of Lake copper in New York in

January, 1896, was 9·87 cents, but in December it had risen to 11·28 cents and in January just closed it was 11·75 cents: and it seems probable that it will go still higher. The large dividends paid by the Calumet & Hecla last year have also aided the speculation. The expectation seems to be that with 12-cent copper nearly all the Boston companies can realize profits, and make dividends accordingly.

Among the gains noted in the leading stocks in the past three weeks are $35 per share on Calumet & Hecla, which is now at the highest point it has ever reached; $27.50 on Tamarack, and $16 on Boston & Montana. The minor stocks have also shown very large comparative gains, such as $5.50 per share on Osceola, $4.25 on Tamarack, Jr., $3 50 on Kearsarge, $3 on Franklin and $3 on Atlantic. The only exception to the rise is Quincy, which has fallen slightly in price, notwithstanding the recent declaration of an $8 dividend.

The extent of the rise is shown by the round estimate that during the last month the nominal or selling value of the stocks of 12 of the leading copper companies has increased by about $10,000,000 in all.

The Colar Gold-Field in India.

Of the gold-fields of secondary importance probably none has, in recent years, made more steady progress than the Colar gold-field in Mysore, one of the controlled or tributary states of British India. This is due largely to the fact that the field has been worked in a quiet, business-like way; there has been no booming, but steady development and prospecting. It is, of course, not to be compared in importance with the Transvaal or the larger Australian districts, but its total production last year reached a value of $5,821,000, and in six years has shown a gain of 147 per cent. This gain continued in 1896, the year showing a total improvement of 29 per cent., as compared with 1895, chiefly because two or three new companies were added to the list of those in operation.

The output of this field for six years past has been as follows:

Year.	Crude oz.	Fine oz.	Year.	Crude oz.	Fine oz.
1891	130,137	113,870	1894	209,729	183,513
1892	163,140	142,718	1895	249,355	218,186
1893	207,135	181,243	1896	321,878	281,643

Operations in the district have been chiefly in the hands of four companies, whose mines and mills have furnished 95 per cent. of the entire production. These four have been very successful, and for several years have paid dividends steadily. Three other companies, the Balaghat-Mysore, the Gold Fields of Mysore and the Mysore West & Wynaad, have operated with less success, owing to faults in location and management. Last year a new company, the Coromandel, made its first appearance as a producer, and its property is said to promise well. The reports of the four leading companies for 1896 show the following results:

Company.	Ore worked. Tons.	From mill. Crude oz.	From tailings. Crude oz.	Total gold. Crude oz.	Per ton. Oz.
Mysore	64,297	89,053	18,728	107,731	1·68
Champion Reef	70,972	78,796	7,799	86,595	1·22
Ooregum	63,788	55,162	10,513	65,675	1·03
Nundydroog	39,490	43,299	1,626	44,925	1·14

From this statement we see that the return varied from $18.63 per ton in the Ooregum to $30.38 per ton in the Mysore. The largest mill in operation is that of the Champion Reef, which has 140 stamps, 40 stamps having been added in July, 1896. The average return in this mine showed some decrease last year, probably because of less careful sorting and haste to supply the larger mill. Nearly all the ore is free-milling, and until quite recently all the gold was obtained by amalgamation. The treatment of tailings by the cyanide process has met with some success; at least it has paid, though the proportion of the gold obtained in this way is very much smaller than in the Transvaal, for instance. It was probably larger in 1896 than it will be hereafter, since all the companies had considerable accumulations of tailings which they have been working off.

The Colar goldfield does not promise any extraordinary expansion, but it may be expected to keep up its present yield at least, and probably to show a moderate increase for some years to come. It has given very fair instances of what can be done with good management in a gold-mining operation.

The Lake Waterway.

Probably no expenditure ever made by the Government has been of greater benefit to the nation than the money employed in improving and maintaining navigation on the Great Lakes. It is the Lake waterway which has made the development of the iron ores of Michigan, Minnesota and Wisconsin possible, and has enabled the iron ranges of the Lake Superior region to furnish the industry in the United States with a supply of iron ores, without which its growth would have been far less rapid than it has been. The copper industry of Michigan has been also very greatly benefited. Taking these two great interests alone, the return has been far greater than the amount invested, to make no mention of the agricultural industries of the West.

The enormous value of the lake traffic is shown by the fact that in 1895 —the figures for 1896 are not yet complete—the vessel traffic passing through the Detroit River, where nearly all the tonnage of the lakes meets, exceeded by 10,000,000 tons the total foreign trade of the United States. The freight carried was 29,860,335 tons and the distance covered by it reached the enormous total of 22,395,251,250 ton-miles. This great amount of freight, moreover, was carried at an extremely low rate, the average being estimated at 0.085 cent per ton-mile—probably the lowest price for which freight is transported anywhere in the world. In this country the railroad rates are less than in any other except British India; but about the lowest charge known here is that on Pocahontas coal to tidewater, which is not far from 0.25 cent, or three times the lake rate. The average trunk line rate on heavy through freight is 0.45 to 0.60 cent, or from five to seven times the lake rate.

The effect of this extremely low rate, on the iron ore industry especially, can be estimated only by the fact that the shipments have reached a total of 10,000,000 tons a year.

The figures which best illustrate the growth of the lake traffic are those which give the business passing through the Sault Ste. Marie Canal. We have given the statement for the years 1885, 1890, 1895 and 1896 to illustrate the growth of business:

Year.	No. vessels.	Tonnage.	Tons freight.
1885	5,380	1,035,937	3,256,628
1890	10,557	8,454,435	9,041,313
1895	17,956	16,806,781	15,662,580
1896	18,615	17,249,418	16,239,061

The estimated value of the freight last year was $160,000,000. It must be remembered that the canal is closed by ice for about one-third of the year; in 1896 it was open 234 days.

The only great maritime canal at all to be compared with this is the Suez Canal; and during the latest year for which figures are available that waterway passed 3,352 vessels, with a total registered tonnage of 8,039,105, or 9,110,313 tons less than were recorded at the Sault last year.

Perhaps these figures should not surprise us, when we remember that over 60 per cent. of the iron ore supply of the United States last year, came from the Lake Superior mines and that nearly all of it took the water route to market. Taking the rates paid on this ore by lake, we find that if the ores had been carried by rail at the usual average of the roads west of Cleveland and the other lake ports, the charges on this ore would have exceeded the freight actually paid by some $2.50 per ton; that is the cost of every ton of pig iron made from Lake ore would have been increased by $4.

This instance alone is sufficient to show the importance of the lake waterway, to both the mining and manufacturing industries; and others equally striking could be given, did space permit.

Comparative Pig-Iron Production.

As we gave recently the pig-iron production of the United States in detail, it will be of interest to compare our output in recent years with that of the two only other countries which at all approach us as producers. The following table shows the pig iron made for five years past in the United States, Great Britain and Germany, the latter being given in metric tons, and the two former in long tons:

Year.	United States.	Great Britain.	Germany.
1892	9,157,000	6,616,890	4,937,461
1893	7,124,502	6,829,841	4,986,030
1894	6,657,388	7,364,745	5,559,322
1895	9,446,308	7,895,675	5,788,798
1896	8,623,157	8,750,000	6,460,000

In 1892, when the United States had a prosperous iron trade, Great Britian was suffering from the effects of the Baring panic, and production was at a lower point than for several years previously. Since then the trade has improved gradually and production has worked up steadily year by year until in 1896 it attained the figure given—a gain of 855,000 tons over 1895, and of 2,134,000 tons over 1892. The output last year was in fact the largest ever reported, although it has twice before been nearly approached---8,495,800 tons in 1883, and 8,325,000 tons in 1889.

The fact that British furnaces could turn out nearly or quite as much pig iron 14 years ago as they do now, while the production of the United States was only about half the present amount in 1883, shows the relative position of the two countries. The maximum has apparently been almost reached there, while here there are still abundant opportunities for growth. So far as iron ores are concerned, Great Britain's resources have been drawn upon almost to exhaustion, and year by year the furnaces are depending more and more upon foreign ores, chiefly Spanish and Swedish. Under present conditions no great increase of furnace capacity is to be expected and the demands of the steel-makers, should they show any marked increase, are as likely to be met by buying American pig iron as by a growth in the home production. In fact, they have been recently so supplied to some extent. It is not probable, however, that the present extraordinary demand for finished iron and steel will be long maintained, and the production may be expected to show some decrease in the current year, or, at any rate, only a very slight increase.

The demand for pig iron has been largely from the steel-makers, and the estimated output of steel last year in Great Britain was 3,950,000 long tons. Of this great output over half, or about 2 000,000 tons, was open-hearth steel, the Bessemer steel output being 1,850,000 tons, and that of crucible steel 100,000 tons. This output was still considerably below ours, although the latter last year showed a decrease from the 6,114,000 tons made in 1895. The exact figures are not yet attainable.

The United States production shows the most marked fluctuations, dropping nearly 30 per cent. from 1892 to 1894, and then in one year recovering to the highest figure ever reported. We have not yet reached the highest point to be expected, however, and have, within the past year, demonstrated our ability to make at least 11,000,000 tons of iron a year, without any increase in our present furnace capacity.

Of the three great iron-making countries, however, it is Germany which has shown the steadiest growth. While there have been no remarkable changes from year to year, there has been a steady increase, and in the last five years there has been no retrogression, while the gain made from 1892 to 1895 has been nearly 30 per cent. The German furnaces last year, however, were worked up nearly to their full limits, and they are already somewhat concerned over their ore supplies for the future.

Of the three countries, our own has the greatest opportunities for future growth, and it is quite possible that in time we may supply some of our rivals' needs as well as our own; though that time is still some distance in the future.

NEW PUBLICATIONS.

THE STORY OF AMERICAN COALS. By William Jasper Nicolls. Philadelphia; J. B. Lippincott Company. Pages, 405. Price, $3.50.

The coal industry in this country has grown so rapidly within the last 50 years, and so much is involved in and depends upon it, that a collection of data at a time when some of the early pioneers of the industry are yet alive is very timely. It is especially appropriate that this should be done by one who has spent many years of his life in the coal regions and in the coal business, affording him an unusual opportunity for gathering the necessary material. The volume now published is filled with valuable material, and yet the story is not half told. In fact, the author has adhered so closely to Pennsylvania history and development—which that State through its output and resources really deserves—that it appears to us the title should have been less general than it is. The East has been very well taken care of; the Southern and Central-Western States scarcely at all. This is, perhaps, pardonable, because of the extent of the subject, and from the fact that the volume may not have been intended as a history of coal in all American localities.

The historical value of the book is very great; it would be increased, however, had the author given the sources from which he obtained the dates and other facts of discovery, which could easily have been done in a series of foot notes. History seems to have been the main point which the author has desired to chronicle, leaving out of view altogether statistics as to past production and future prospects. The omission of illustrations, particularly maps, in the fore part of the volume, is rather unfortunate. The volume as a whole is to be commended, and will be sure to receive a hearty welcome from all coal people. There is little that could be omitted to advantage, the possible improvements being entirely in the nature of additions.

ARCHIV FUR PRAKTISCHE GEOLOGIE: II. Band. By F. Posepny. Freiberg, Saxony, 1895. Craz & Gerlach. 8vo. Pages, XXXII., 752. Six Plates.

The above book continues the series of papers inaugurated in Volume I., of the *Archiv für Praktische Geologie*, which was issued at Vienna in 1880. It terminates the series so far as Posepny himself is concerned, because it has proved the swan's song of its distinguished author, who passed away just as the final proof-sheets were being read. The two volumes and the treatise on the *Genesis of Ore Deposits* exemplify the life-work of a devoted and keen student and furnish invaluable additions to the literature of ore deposits.

The volume before us opens with a sketch of Posepny's life, which in largest part is from his own pen, as it was furnished by a manuscript found among his papers. It is accompanied by a bibliography of 108 titles, an impressive proof of the author's busy life. The first contribution in the book proper is a detailed sketch of the occurrence of gold in Bohemia and the neighboring countries. (*Die Goldvorkommen Böhmens und der Nachbarländer*), pp. 1-484. The gravels and deep mines of Central Bohemia, Southwest Bohemia, the Bavarian frontier, Northwest Bohemia, Saxony, Northeast Bohemia, Prussian Silesia, Southeast Bohemia and Southeast Mähren, Northeast Mähren and Austrian Silesia are successively passed in review. The paper closes with a historical sketch containing copious statistics and a statement of geological conclusions. Most people interested in the production of the precious metals do not associate Bohemia and its neighbors with the really serious gold-mining countries and the wide distribution of auriferous gravels, despite their minor importance, will prove striking to the reader not already familiar with them. The gravels are situated chiefly on lines of drainage long since abandoned by the active miners and present some analogies with the high or deep gravels of California. They have been dug over since prehistoric times. The source of the gold is traced back to the parent veins or *Goldrhizoden* (goldroots) of the author, and some interesting generalizations are drawn.

The second paper is by Max Reichsritter von Wolfskron, and relates to some old placers in Salzburg (*Die alten Goldwäschen am Salzachflusse in Salzburg*), pp. 485-498. The paper contains local details and an interesting historical and statistical sketch.

The third paper is by Posepny, on the gold districts of Beresov and Miask in the Ourals (*Die Golddistricte von Beresov und Mias am Oural*), pp. 499-597. This is a very valuable sketch of the chief gold districts of Russia, now the fourth producer of the yellow metal. Gravels are important in both the regions treated. They indicate old systems of drainage, long abandoned, as well as placers formed in situ by residual decay and removal of the wall rocks. Beresov is no less famous for its remarkable igneous rocks than for its gold veins, and the curious acidic granite or quartz porphyry, according to Posepny, called beresite, is familiar to all students of rocks. Dikes of this rock cut the schists in enormous abundance as will be seen from the accompanying map. In the dikes are veinlets of auriferous quartz, that also ramify into the wall rock to some extent, and that furnish the gold. The veinlets are clearly of formation subsequent to the dikes. At Miask there are granite and greenstone intrusions in metamorphic schists, but the gold is almost entirely obtained from gravels. The paper concludes with an examination of the views of Karpinski, who had held that gold was found as an original mineral in certain of the Russian rocks. Posepny argues stoutly for its secondary introduction by solution as all would surmise from the well-known tenor of his previous writings. The question, however, still arises as to the original source of the gold, whence the solutions derived it. It must come from some sort of rock, but in the present volume as in other places Posepny does not pursue the subject to this limit.

The fourth paper is by Dr. Richard Canaval, on some placers in Carinthia (*Ueber die Goldseifen der Lieser in Karnten*) pp. 598-607. Geological, historical and statistical details are given and some interesting, percentage determinations of the heavy minerals in the fine concentrates. There were in the black slimes of 0·1 m.m. diameter (0·004 in.) 30% magnetite, ilmenite, specular hematite; 20% titanite; 15% hornblende, 15% garnet, 5% epidote, 4% zircon, 4% rutile, 3% biotite, cyanite, staurolite, etc., 3% tourmaline, 2% quartz, 1% feldspar. In gray slimes of 0·2 mm. diameter, the quartz and feldspar made up about one-third of the whole.

The last, and, in many respects for the general reader, most interesting part of the book, is a paper by Posepny on the geology of the famous silver veins at Pribram (*Beitrag zur Kenntniss der montan-geologischen Verhaltnisse von Pribram*) pp. 609-745. These extremely productive and persistent veins have long been classic ground in connection with economic geology. The great depth of the workings has attracted the interest of mining engineers and the investigations pursued there to test the lateral secretion hypothesis have claimed the special attention of geologists. The wall rock of the veins is largely a Cambrian sandstone, which is penetrated by a great series of greenstone and porphyry intrusions. Cambrian slates also occur, and in the neighborhood are Silurian sediments, pre-Cambrian metamorphics and granite. The veins are on fault fissures of several systems, and while argentiferous galena is the chief ore, 79 different minerals have been recorded. The paper gives many local details, and is accompanied by a colored geological map of the region, and by charts showing the relation of the veins. It will be remembered that Posepny was for ten years attached to the mining academy at Pribram and that the course of lectures that he gave there is the basis of his *Genesis of Ore Deposits*, lately issued by the American Institute of Mining Engineers. Unfortunately after his assumption of the professorship and after he had begun his studies of these veins, the management of the mines resolved to undertake the same task and there resulted a clash of interests and authorities that resulted in an unfortunate discussion and in incomplete monographs. Posepny on the one hand could not obtain all the desired aid from the corps of surveyors and mining captains, while on the other hand the management had no geologist who ranked in Posepny's class. Failing health also curtailed the latter's activities. In the discussion of the method of filling of the veins our author gives a concise and incisive review (pp. 740, 744) of the results attained by Sandberger in his test investigations at Pribram to establish the lateral-secretion hypothesis, and beyond question most unprejudiced readers will conclude, with Posepny, that few veins are such clear cases of uprising solutions.

A brief criticism of the monograph of J. Schmidt (the one fathered by the mining management) and a polemic regarding the hindrances placed by officials in the way of Posepny's own work conclude the volume.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Internal Revenue Laws in Force August 28, 1894. Washington, D. C.; Government Printing Office. Pages, 341.

Review of the Trade of India in 1895-96. By J. E. O'Conor, C. I. E. London, Eng.; H. M. Stationery Office. Pages, 82; with diagram.

Statistical Abstract of the United States, 1896. *Nineteenth Number.* Washington, D. C.; Government Printing Office. Pages, 490.

Report of the Commissioner of Internal Revenue for the Fiscal Year ended June 30, 1896. Washington, D. C.; Government Printing Office. Pages, 421.

Eighth Report of the Chief Labor Correspondent on Trade Unions (United Kingdom), 1894 and 1895; *with Statistical Tables.* London, Eng.; H. M. Stationery Office. Pages, 515.

Third Annual Report of the Labor Department of the Board of Trade (United Kingdom), 1895-96; *with Abstract of Labor Statistics.* London, Eng.; H. M. Stationery Office. Pages, 200.

List of Lights and Fog Signals on the Atlantic and Gulf Coasts of the United States. Corrected to January 1st, 1896. Washington, D. C.; Government Printing Office. Pages, 224; illustrated.

List of Beacons, Buoys and Day-Marks in the Third Lighthouse District, Tompkinsville, Staten Island, N. Y. Corrected to July 1st, 1896. Washington, D. C.; Government Printing Office. Pages, 137.

Geological Survey of Canada: Annual Report of the Section of Mineral Statistics and Mines for 1895. By Elfric Drew Ingall and L. L. Brophy. Ottawa, Canada; H. M. Printer. 1897. Pages, 103.

Statistical Abstract for the Several Colonial and other Possessions of the United Kingdom in each year from 1881 to 1895. Thirty-third Number. London, Eng.; H. M. Stationery Office. Pages, 272.

Annual Report of the Lighthouse Board to the Secretary of the Treasury for the Fiscal Year ended June 30th, 1895. Washington, D. C.; Government Printing Office. Pages, 206; with maps and illustrations.

Annual Report of the Comptroller of the Currency to the Second Session of the Fifty-fourth Congress of the United States, December 7, 1896. Volume II. Washington, D. C.; Government Printing Office. Pages, 1,259.

Report of the Director of the Mint Upon the Production of the Precious Metals in the United States during the Calendar Year 1895. R. E. Preston, Director of the Mint. Washington, D. C.; Government Printing Office. Pages, 384.

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CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested. Letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

Drying Limonite Ores.

Sir: Can any of your readers give me any information on the following points: To what heat must a limonite iron ore be raised in order to drive off the combined water? How can this best be done? How fine must the ore be? What is the approximate cost per ton of the operation?

COLORADO SPRINGS, Colo., Jan. 29, 1897. W.

Chrome Iron Ore for Furnace Linings.

Sir: In Mr. Lang's article on "Furnace Construction" on page 89 of the *Journal* for January 23d, he states that he was not aware of chrome iron ore being used in open-hearth furnaces. In an article on the "Basic Open Hearth Process" in the *School of Mines Quarterly*, Vol. 7, page 49, I called attention to the fact of chrome iron ore being very successfully used in both cupola and open-hearth furnaces. Since that time I have become aware that chrome iron ore has been crushed, washed and made into bricks by a hydraulic press process and very successfully used. I endeavored to procure specimens of these chrome iron ore hydraulic bricks, but was not able to obtain a sample. THOS. EGLESTON.

NEW YORK, Jan. 30, 1897.

Some Possible Economies at Anaconda.

Sir: The Anaconda mines and works in Montana are the greatest on the continent, and since attention has been called to them very frequently of late, owing to the purchase of a large interest in the property by the English, it may not be without value "to whom it may concern" to call attention to some features of Anaconda practice, which seemingly are far behind that at the iron ore and copper mines of Michigan.

In the annual report of the Anaconda Copper Mining Company, published in your issue of December 26th last, Mr. Daly mentioned the falling-off in the gold and silver contents of the Anaconda ore. This scarcely affects the expense of treatment, yet it cuts down the gross returns in direct proportion to the falling off and the only way to keep up the present rate of profit per ton of ore is by decreasing the cost of production. No doubt the English interests are fully alive to most of the changes that should be made at the mines and works, but it may not be altogether unnecessary to call attention to a few places, where to a casual visitor it would seem that economies might be introduced.

The hoisting at the Montana mines in many respects is not up to the best Michigan practice. The shafts are narrow, from 4 ft. 6 in. to 5 ft. wide, and as a result the mine cars are very short, hold only about 1,800 lbs. and to get capacity recourse is had to multi-decked cages, with a consequent loss of time in loading. Thus on one occasion I noticed that a certain double-deck cage took 58 seconds to do the decking and only 42 seconds to do the hoisting. One improvement would be in doing away with the complicated truck and dumping gear under the car and the carrying down of the body of the car to the axles with a flare above the wheel. The capacity of the car would then be much increased. For dumping these cars either a tilting truck or a revolving cradle could be used. At the new hoists it is reported that self-dumping skips are to be employed. This is undoubtedly good practice at shafts where men and timber need not be handled. To facilitate loading the skip pockets should be provided underground, each holding a skipful.

The question of power tramming undoubtedly is receiving the consideration due it. In a camp where labor is $3.50 per day this is of the greatest importance. As the drifts are generally but one track wide, the overhead trolley system undoubtedly would be the best. A motor could be constructed of such shape that when tilted on end it could be moved from level to level on the cage. Even for the present the efficiency of the car-pushers would be increased by the deep car just referred to.

It is, however, in the present system of overhead stoping, square set timbering and filling, that there is the greatest room for improvement. It is one that was fully tried in Michigan, and has been finally abandoned for the more economical system of caving from the top and allowing the hanging to crush and fill in by itself. In one prominent Michigan mine, the saving in filling alone was over 15c. per ton, with wages at $1.75. At Butte wages this would amount to 30c. per ton.

In some of the wide stopes at the Never Sweat shaft the ground is so heavy that the posts after being in a few days, must be reinforced by four strengthening pieces placed on the four sides. The filling must be kept up within some two or three sets of the miners and on the same tier. This makes a great expense for filling, handling and repairing timber and is the logical consequence of cutting out the bottom of a huge ore body 100 ft. wide and expecting it to hang up by the friction on the vein walls. It cannot be done. Even the resort to rooms and pillars only postpones the inevitable result.

Another point that will bear investigation is the tramming of ore in the stopes to the various chutes. Michigan practice has shown that it is economy to have raises so close together that the ore can be shoveled into them without the necessity of wheeling it. As nearly as can be calculated from the annual report the cost per ton for mining is $3.47. This is after making due allowance for equipment and expenditure on non-productive mines. While the report gives us no details there seems every reason to believe that this ore could be mined at from $2.75 to $3 per ton.

When it comes to the concentrators at Anaconda there is one defect that certainly is glaring, and that is the use of steam stamps. One has but to look at the inky streams from the tail races and compare them with the pearl-gray tailings from the Great Falls concentrator to see the mischief that is being done. While steam stamps do very well at the copper mines of Michigan, it must be remembered that native copper is a very different material from copper glance. Crushers, rolls and trommels will not only make a greater saving but will present the concentrates to the smelter in a much more acceptable manner. OSSIPEE.

NEW YORK, Feb. 1, 1897.

THE GAGNON ELECTRIC RAILROAD AT BUTTE, MONTANA.

At the recent annual meeting of the Montana Society of Civil Engineers, President Herron described the Gagnon Electric Railroad, which the Colorado Smelting and Mining Company of Butte has the past year built to avoid the wagon hauls of its ores from the mine to the smelter.

This interesting work has a total length of 2·7 miles. At the Gagnon terminal is a tunnel 254 ft. long through the waste dumps. This tunnel is on a 70° curve, and has a grade of 3%. At the reduction plant terminal the concentrator bins are approached on a trestle with a grade of 2% and a 65° curve. The maximum grade for loaded cars going out of the tunnel is 3%. Empty cars returning up Montana street have a maximum grade of 10·62%. This grade is from Park street to the mouth of the tunnel; and is operated by an electric hoist plant of two 15-H. P. Sprague double reduction motors established at the mouth of the tunnel. A cable is attached to the cars at the tunnel which is the summit of the 10·62% grade, and the cars are then let down as far as Park street. At this point the cable is detached and the cars then proceed to the reduction plant under control of the trolley and brakes, having then a maximum down-grade of 7·46%.

The cars are of 10 tons' capacity and are operated two together. Each is supplied with two 15 H. P. motors, and power is furnished from the city electric plant. Track and wheel brakes are on each car, but the wheel brakes are ordinarily sufficient to control them, the track brake being used only in emergencies. The electric hoist will also probably be done away with, as the combination of the two brakes is found to be efficient, even on the 10·62% grade. The road is owned by the Butte Consolidated Street Railway Company, the ore being hauled by them under contract with the Colorado Company. Mr. F. W. Blackford had charge of the construction of the line.

The Mint Commission.—The President has designated as commissioners to test and examine the weight and fineness of the coins reserved at the several mints of the United States during the calendar year 1896, pursuant to the provisions of section 3,547 of the revised statutes, the following persons: Senator White; Representatives Brewster and Sparkman; A. Louden Snowden, of Philadelphia; William D. Bynum, of Indiana; Prof. Albert S. Bolles, of Philadelphia; Francis Bartlett, of Boston; Dr. Joseph W. Richards, of Lehigh University, Pennsylvania; Gustave A. Endlich, of Pennsylvania; Prof. Charles F. Chandler, of Columbia College, New York; Prof. Ira Remsen, of Johns Hopkins University, Baltimore, Md.; Cabell Whitehead, of the Bureau of the Mint; William C. Little, of St. Louis, Mo., and E. Rosewater, of Omaha, Neb. The Comptroller of the Currency and the Assayer of the United States Assay Office at New York are also members of the commission. The commission will meet at the Mint in Philadelphia February 12th.

Gold Mining Concessions in Madagascar.—The terms on which concessions will be granted by the French authorities have been published in the *Journal Officiel de Madagascar*. All Europeans as well as Frenchmen will be entitled to the privilege named. The first step necessary is to take out a prospecting permit, which may be obtained either from the Bureau of Mines, at Tananarivo, or from the French residents in other parts of the island. These permits will cost 25 fr. and are good for one year. They give the right to prospect and to mark out claims. Any claim located must be marked by a post not less than 2 m. in height, and there must be a distance of at least 5 km. between two posts. This location will give the discoverer a right to make explorations for two years within the territory marked by a circle 5 km. in diameter, with his signal post as a center. For mining concessions there are two classes. The first include placers, and the limit of size is 1 km. in length and 200 m. in width. The second includes quartz veins and diamond mines, and the limit is a rectangle 400 × 500 m. The price or tax per year will be for a single concession 300 fr. Companies formed to work mines may obtain concessions up to the extent of 2,000 hectares, provided they obtain the approval of the Mining Bureau and the Resident General in the island.

GEORGE BROOKE ROBERTS.

George Brooke Roberts died at his home in Bala, near Philadelphia, January 30th. The immediate cause of his death was heart failure, resulting from a complication of diseases. He had been suffering for some time and several intervals of rest had failed to improve his condition.

He was born in Montgomery County, Pa., January 15th, 1833. His birthplace was the original house built about 200 years ago by his Welsh ancestors in the settlement now known as Bala. Mr. Roberts maintained a home in that spot throughout his life. Such early education as his parents were able to give him was received in the Rensselaer Polytechnic Institute, in Troy, from which he graduated in 1849. When 18 years old, young Roberts entered the employ of the Pennsylvania Company, and began his railroad career as a rodman in the construction department of the mountain division. During the next 10 years he was constantly employed in the location and construction of branches of the Pennsylvania and allied lines in that State and New Jersey, gradually rising in rank and becoming known not only as an able and careful engineer, but also as an administrator and manager of high rank. As a result of his excellent work he was in 1862, just 11 years from the time he entered the service of the Pennsylvania Railroad, appointed assistant to President J. Edgar Thomson. In the spring of 1869 he was elected fourth vice-president, and a few months later was advanced to the second vice-presidency. In the latter capacity he had charge of all engineering questions in relation to the extension and improvement of the various lines of the company. When Mr. Thomson died in 1874, and Thomas A. Scott became president of the company, Mr. Roberts was chosen first vice-president, and had as his especial charge the company's relations with other lines. On the death of Mr. Scott in 1880, Mr. Roberts succeeded him as president, and from that time until his own death he remained at the head of the company. In the main he followed the policy outlined by Mr. Thomson and Mr. Scott, but with additions and improvements of his own.

Though trained as an engineer entirely, in the course of his service on the Pennsylvania he made himself familiar with all the business of the road. On the traffic department he bestowed especial attention. This was shown when, soon after he became president, he reorganized the traffic departments so as to extend the facilities for obtaining and handling business. He paid equal attention to the passenger and the freight department. He insisted not only upon strict discipline, but uniform courtesy among his employees. His instructions throughout the entire period of his authority were to treat the traveling public with patience and civility. In that way he sought to popularize his road and minimize the public demands for new rivals.

The policy of the road in its coal business was a special care, and he gave a great deal of attention to the development of the bituminous coal trade in Western Pennsylvania. The relations of the company to the other anthracite coal carriers were also a subject of much consideration, and the independent policy which the company followed was chiefly due to him.

GEORGE B. ROBERTS.

He was a very hard worker himself and fully understood the value of system in his work. He was well acquainted with all the leading officers and employees of the company, and thoroughly appreciated their work when it was well done. To him was largely due the careful system of promotion which is followed on the road, including the preference always given to those who, like himself, had begun in the lower ranks and worked their way up. His working life was practically all passed with the Pennsylvania Railroad, and he was thoroughly absorbed by his work for the company. He had no other interests, and always declined to enter into any outside business, refusing all of the many offers made to him. Unlike some officials, he was readily accessible to persons who had business with him. He was exceedingly democratic, with no affectations, no fads, no whims, and apparently no desire for personal fame. He was very popular with the employees of his road.

Mr. Roberts married early in life and had six children, all of whom are living. Although not a very wealthy man, he was in very comfortable circumstances, possessing a town house in Philadelphia and a country home at Bala. He was exceedingly domestic in his tastes and passed most of his time when not in his office with his family. He had no taste for social functions and was scarcely ever seen at a club. Although of economical habits and opposed to extravagance in corporation expenses, he was not niggardly with his private means. On the contrary he was usually very sympathetic and liberal in cases of personal distress, especially when such cases affected the employees of the Pennsylvania lines. His philanthropic tendencies were manifested by the establishment of the Pennsylvania Railroad Voluntary Relief Association, a benevolent institution within the railroad organization.

Mr. Roberts took a prominent part in the formation of the Trunk Line Association, and his influence was very strongly felt in all its transactions. Perhaps no other president was so generally respected for his fairness. Personally he was one of the most upright of men, and general deference was paid to his integrity as well as his ability. He was a man of many friends, but very few intimates; and those who knew him liked and respected him well. Few men got through more hard work than he could, and he relaxed his attention to business very little even when illness disturbed the closing years of his life.

PRACTICAL NOTES ON FURNACE CONSTRUCTION AND MANAGEMENT.—II.*

Written for the Engineering and Mining Journal by Herbert Lang.

Cooling by means of water pipes built into the brickwork, has been practised for some time as a means of preventing the destruction of the furnace. The iron smelters have adopted it in several instances for preserving the walls in the immediate vicinity of the tuyere openings, but on the whole have given their preference to water-cooled bricks of various forms, which, as a rule, are so contrived as to admit of removal and replacement without stopping the furnace. I have seen the same principle applied to fore-hearths, the pipes being imbedded in the lining and just inside of the cast-iron side-plates. This provision renders the walls almost indestructible if properly applied, and is so simple that it is a wonder why it is not oftener adopted. It takes surprisingly little water to keep the pipes cool, and wherever there is a scarcity of water, irrigation might profitably be adopted instead of the water-jacket.

There is a small practical disadvantage in using horizontal cooling pipes, as if steam is formed through a temporary shortage of water, the whole contents of the pipes are projected out with force enough to be annoying; and it is often quite difficult to coax the water again into the hot pipe. Perpendicular pipes that derive their supply from below them are preferable in this respect, for in such pipes the water may be left to boil away without danger or inconvenience. This boiling, however, may in the long run be detrimental, as giving rise to a deposit of scale which may in time choke up the pipe. Fig. 2 exhibits a section of the wall of the Keswick furnace, built by me, which illustrates this mode of cooling by irrigation. The pipes are 2-in., and take their rise from the water jacket, which is but 1 ft. high. They are spaced 7 in. apart and penetrate the brickwork for 3 ft. rising parallel to the inner face of the wall. The water enters the jacket first, flowing thence upward through the pipes and falling finally into a launder placed outside. The pipes are set back 4½ in. from the face of the brickwork, which is flush with the jacket. The practical difficulty with this furnace was that the tuyeres at first burned off in front and allowed the blast to play nearer and nearer to the pipes, scoring the bricks between the pipes and broadening the zone of fusion some inches. The pipes were uninjured, although the smelting went on against them, and they could be seen standing black and impregnable in the midst of the using material. To correct this point of weakness I placed a 3-in. pipe horizontally around the inner periphery of the shaft, resting upon the end of the tuyeres and against the upright pipes. It derived its cooling water from the end jackets and discharged into the same launder as the others. Its effect was to prevent the burning off of the tuyeres, and it preserved the inner lines of the shaft in proper form.

In designing a furnace as large as this, the interior length being 15 ft., it becomes necessary to take cognizance of the weights which have to be supported, as well as the lateral strains to be resisted. On these long sides there is a great tendency to distortion, owing to the expansive force of the brickwork, as well as to the strains set up by cooling masses of slag left in the furnace when it is blown out. To leave room for expansion without endangering the structure, and to arrange matters so that the different parts could yield to the strains to some extent and return to their places when relieved, I built the jackets in four pieces, two of 15 ft. long for the sides, and two of 6 ft. 4 in. for the ends, the material being soft steel. Their shape and the manner of their support upon the bracketed posts allowed of a trifling movement, designed to prevent injury. The girder form of both the jackets and wind-boxes enables the two to carry the superincumbent mass of brickwork, and transmit its weight as well as the horizontal strains to the brackets and columns. For this purpose the jackets are made of half-inch metal, the wind-boxes quarter-inch. The water jacket is nothing more than a water-cooled girder, and fulfills the functions of both girder and jacket. It proved a costly construction, however, and I have abandoned it in favor of a simpler and more compact one which I will describe in part.

Fig. 3 shows my latest design. Like the other furnace, it is a combination of water jacket and brick furnace, designed to include the valuable features of each without their disadvantages. My endeavor has been to render the structure more compact and homogeneous and to produce a design which is applicable to large or small furnaces, to cold blast and hot blast furnaces, to lead smelters and copper smelters alike. I have in this furnace reduced the number of columns supporting the structure to four, and in order to leave a clear space about the furnace, I have set these under the corners of the furnace, where they are out of the way. They are not, however, set under the crucible, for this would make it difficult to move this very necessary accessory, which is a most desirable thing. The crucible, or tray as the case may be, is suspended by means of eye-bolts from the body of the structure, these bolts being arranged so as to admit of speedy removal whenever it is necessary to take the bottom away and give access to the furnace iron below. I attach a good deal of importance to the removable bottom, for accidents

* Article No. I. of this series was published in the *Journal* for January 23d, 1897, page 89.

will happen even in the best-regulated smelters, and while it may seem to be a very severe operation to remove the whole bottom, it is not so bad when the doctor knows his business, and the men can lower the casting and get the whole of the material out in two or three hours, if nothing unusual occurs. This is much better than waiting for the walls to cool and sending men in to dig the material out from above. A good many persons will disagree with me in this and say that it is not worth while to go to the expense of these castings for the sake of providing against freeze-ups. This a matter worthy of extended consideration. I am not one of those who pretend to be able to run blast furnaces forever without chilling up occasionally. I believe I have had as great an experience in that line as anybody; in fact, I believe I have frozen up as many furnaces as anybody else. But I do not regret it, for every freeeze-up affords opportunities for acquiring information which cannot be otherwise gained. A metallurgist is a poor hand who cannot learn at least a little something new every time his furnace goes out. But after all the freezing of a matting furnace is of small consequence, and not to be compared with an accident to an iron or even a common lead furnace. Of the least importance is the chilling of the pyritic furnace, which can be set right in a few hours. My furnaces are open at the top all the time, and may be entered from the bottom by an hour's labor, and the charge dropped in a little longer time. Then, resuming, the stack may be refilled and the blast turned on and slag melted in an hour more; so that what has been looked upon as little short of a calamity is now reduced to an unimportant accident, whose recurrence has little bearing on the results of the campaign. Freezing-up has lost its terrors; and furthermore it has acquired an educational value. I believe that nobody can properly run a blast furnace until he has frozen it half a dozen times. I do not mean that anyone shall find in my words an excuse for slack or careless work, but I would not have the youthful smelting man feel unduly depressed by such a slight calamity, nor would I have him neglect the opportunities for useful research which such an event presents. Now that the efforts to save fuel are meeting with such striking success and the coke allowance is cut down to the uttermost, furnace running has become perhaps more precarious than when liberal amounts of fuel were the rule. The fact is, most of our furnaces are run and are likely to continue to be run without much attention to the finer details,

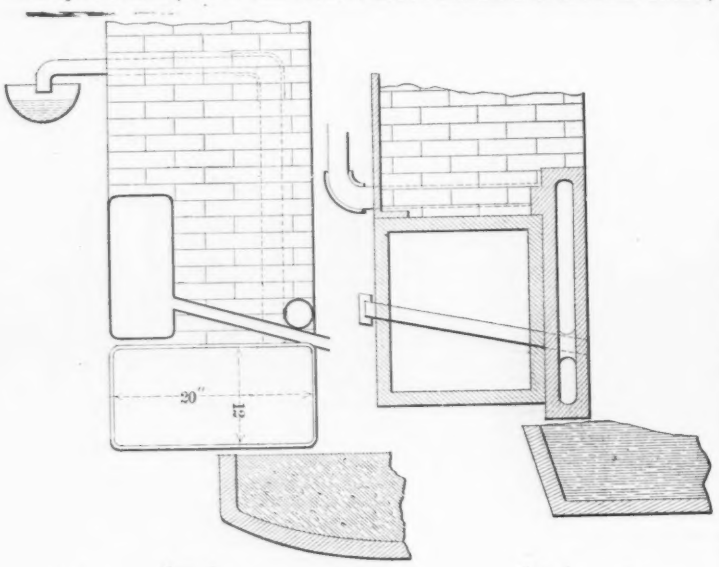


Fig. 2. Fig. 3.

the scientific possibilities of smelting—a condition of things deplorable in itself, but not unpleasing to those who, knowing better, are able to effectively contrast their work with that of the average.

My furnace is composed of cast iron, and is supported on four stout columns upon which rests the girder frame which supports the housing; and this in turn, reaching to the feed floor, is turned outward there and extending to form the floor, which is an integral part of the furnace, instead of being independent of it as usual. This being the case I am enabled to dispense with some of the ordinary posts which cumber the slag floors of other works. The whole construction is self-supporting and self-contained.

The hollow box girders connect in such a manner as to form a continuous passage quite around the furnace, and this is utilized as the wind-box. It communicates with one or more of the hollow columns by which the blast is brought from below ground through pipes leading from the blower. This arrangement is to permit the use of hot air and to save heat room about the furnace. The size of the girders is not such as to allow the air pipes from the blower to be connected direct to the wind-box. Old German practice favors the bringing of the air underground, but it leads to some loss of power in turning corners. The tuyeres are inside of the wind-box as shown, and consist of two gas pipes, one sliding within the other in such a manner as to shut off or let on the blast at pleasure. The tuyeres can be pricked without any loss of wind, as occurs when the ordinary covers are let down, and without the inconveniences which attend the escape of hot air, such as burning the men's hands, etc., which cannot take place in this furnace, as will be seen.

I am very much in favor of a great number of tuyeres, of the least size compatible with the entrance of the necessary quantity of wind. I desire to choke down the blast to the smallest orifice possible, in order to get the benefits of the blowpipe action right at the mouth of the tuyere, which is very important and adds much to the effectiveness of the apparatus. I do not like to have the wind drift idly into the shaft through a big hole and then go, I know not where, to do its work out of sight. Lively work right at the tuyere is the most favorable, and gives the best results. It is a great object to keep the smelting zone as low down as possible, and I find that by dividing the blast between a large number of tuyeres, the whole inside of the hearth can be brought into activity, while, if there are but a few wind-streams, and these very large, they remain isolated from each other, raise the zone of fusion in spots higher than is convenient, require a higher shaft or deeper charge, and leave portions of the hearth inactive. I want a continuous zone of activity quite around the hearth, and to secure this I place my tuyeres within supporting distance of each other. There are 26 tuyeres in the Keswick furnace, placed about 15 in. between centers. I am arranging them 9 in. apart on a later furnace. In this way there will be no dead spaces between the tuyeres, which there might be were the tuyeres farther apart. I do not know how far it is advisable to carry the principle of the division of the wind streams, but I am inclined to think that a continuous tuyere, in the shape of a horizontal slit quite around the furnace, such as is used in the McKenzie cupola, would be a good thing were it not for the difficulty of keeping it clear. The construction would be perfectly easy and quite cheap, and I believe a greater capacity could be got out of the furnace than when fitted with ordinary tuyeres. A uniform rate of working, all through the hearth, is much to be desired. I would lay stress upon the different behavior of the furnace when the tuyeres are few and large and when many and small. In the former case the smoke comes up in segregated masses just over each tuyere, while in the latter the smoke masses blend together below and issue well over the whole surface of the charge. Right over each of the large tuyeres the heated zone rises higher than elsewhere, so that if you were to dig down you would find hot ore sooner just over the tuyere, while you might even go as far as the bottom of the hearth in certain spots and not find any space hot enough for smelting, thus proving that the furnace was not working throughout as evenly as it ought. The object, of course, is to get the maximum capacity out of the furnace, which compels us to put every inch of hearth area into active working.

My cast-iron furnace is jacketed with cast jackets, sectional and removable, which are fastened to the fronts or the hollow girders by means of dowels which fit in corresponding grooves in the girder. They are 2 ft. high or thereabouts, 1½ ft. long, and about 4 in. through, having a water space 2 in. wide. There are two apertures for tuyeres in each. The brick lining of the shaft may be perpendicular, as shown, or it may be laid with a slant, thus enlarging the upper part of the shaft, according to the demands of the work.

THE NORTH CAROLINA GEOLOGICAL SURVEY.

In our editorial columns last week we referred to a proposal made to suspend the work of the North Carolina Geological Survey and to the fact that such a step would be an injury to the State. A brief statement has recently been issued, showing the work which the Survey has done, and we give this in substance below. It certainly establishes its great usefulness to the State, and the excellent and practical character of itswork.

The Geological Survey is the only agency which the State maintains for the exploration, development and advertisement of its resources. It has cost about $10,000 per annum, and has been instrumental in bringing into the State more than $5,000,000 in investments in mineral, timber and water-power development; and the outlook for large annual increases in these investments has never in the history of the State been so promising as at the present time. The Survey has by timely advice prevented the expenditure by citizens of the State of more than $100,000 in cases where this money, if expended, would have been lost. In a time of agricultural depression, like the present, the State, desiring a return of prosperity, and with it more money for schools and other institutions, should look to the development of its mineral and forest resources and water-powers as a basis for manufactures, mining and other diversified industries.

Reports have already been published on the following subjects: (1) Iron ore deposits; (2) building stone deposits; (3) timber resources and lands in the eastern counties; (4) road material and road construction; (5) corundum deposits; (6) monazite deposits; (7) gold deposits; (8) forest fires. Reports on the (1) water powers; (2) mining methods; (3) mica mining; (4) clays and clay products; (5) drinking water supplies; (6) mineral waters; (7) public road improvement in North Carolina, are now being published or prepared for publication; and several other reports will be ready before the end of the present year.

Applications for these reports are received from all parts of the country. The investigations conducted have included, besides the reports published, the soils and the supplies of fertilizers for agricultural purposes, and the drinking waters of the State.

Elaborate maps of the mountain counties and of a majority of the Piedmont counties are being prepared by the United States Geological Survey, co-operating with the State Survey, without expense to the State. These maps, when completed for publication, will show the location of all the important features of each county, such as roads, railroads, towns, post-offices, churches, etc.; the character of the country, such as the hills, valleys, mountains, etc.; the character and location of the geological formations; valuable mineral and ore deposits, and water-powers. No satisfactory geological examination of the State can be made without the use of such maps. The State Survey is examining and locating on these maps the valuable rocks, mineral and ore deposits, forests, soils and water-powers. It is publishing reports on these subjects, and thus informing the citizens of the State and other States and countries concerning the extent and value of its resources.

The men now connected with the Survey have been trained in their special work, and have become familiar with the resources of the State. To cripple or abandon this work at this stage and start it again at a later date would necessitate the training of new men, and thus a loss of time and money to the State.

It is beyond question that the reports of the State survey command the confidence of capitalists and receive attention, and that they are of very great service in attracting the capital which will build up diversified industries. The investigations made are also of great service to the agricultural as well as the mining and manufacturing interests.

TELLURIUM FROM THE GRIFFITH LODE, COLORADO.

By Dr. Richard Pearce.

In this paper Dr. Pearce described to the Colorado Scientific Society a mineral recently discovered by Mr. C. A. Martine in the Griffith mine near Georgetown, in Clear Creek County, Colorado, which has some mineralogical interest. Mr. Martine discovered that it contained tellurium, and was led to believe that it might prove to be telluride of silver and gold, of an entirely new species. The mineral occurs only in small quantities associated with pyrite, galenite and chalcopyrite, in a felspatic matrix containing small quantities of magnesite. The color is dark gray, with a bright metallic lustre; hardness about 3.

An analysis was made by Mr. F. C. Knight on carefully selected material, but owing to its intimate association with the minerals named above, it was impossible to obtain the mineral in a pure form. The result of the analysis is as follows: Ag, 50·65; Te, 18·80; Pb, 9·34; Cu, 4·65; Fe, 4·00; Bi, 1·16; S, 8·06: $MgCo_3$, 1·95; alloy of Au and Ag, 0·48; insoluble residue. 1·07; total, 100·16.

It was supposed by Mr. Martine that the gold present in the mineral was combined with tellurium; the results of my investigations show, however, that the gold exists in the form of a rich alloy of Au and Ag. One small piece of the mineral showed distinctly a coating of gold and silver alloy on its cleavage plane. On treating the powdered mineral with nitric acid the residue showed no indication whatever of brown sponge gold, which would have been the case if this metal was combined with tellurium. On the other hand the residue contained the gold only in the form of a bright pale yellow alloy which proved to be ·725 fine, the rest being silver.

The mineral, judging from the above analysis, may be said to consist of a mixture of hessite and argentite, Ag_2Te and Ag_2S associated with other minerals, in the following proportions: Hessite, 51·22; argentite, 20·93; Cu_2S 5·82, and FeS, 6·28 (chalcopyrite probably); PbS (galenite), 10·78; Bi_2S_3, 1·42; Au and Ag alloy, 0·48; $MgCO_3$, 1·95; insoluble residue, 1·07; total, 99·95. It is interesting to note that the relation between the hessite and the argentite corresponds closely to the formulas: $2(Ag_2Te) + Ag_2S$.

Mineral Product of the Argentine Republic.—According to the Department of Mines and Geology of the Argentine Republic, the year's output (presumably for 1895). was by weight in kilogrammes: Gold, 474; silver, 10,210; copper, 389,900. These amounts were exported to Germany, England, France, Belgium and Italy.

A Gas Explosion in a Salt Mine.—A firedamp explosion in the rock-salt mine at Akna-Szlatina, Hungary, forms the subject of a communication by Oberingenieur Kremnitzky to the *Bányászati és Kohászatilapok*. The rock-salt deposit is 2,200 m. long by a maximum width of 1,700 m., dipping from 65° to 68°, and a section of the measures in downward order shows vegetable earth, sandy gravel, salt clay and rock salt. The archives of the mine prove that it must have been worked from a very early period, while systematic working dates from 1776. The greatest danger hitherto encountered has been from water breaking in; but on the morning of August 28th, though the inspecting foreman found the ventilation satisfactory without anything unusual, a singular rumbling noise was heard on the surface, while the buildings shook; and soon after this some of the men who came up stated that an explosion had occurred in the southern workings, injuring two men severely and one man slightly. The three men stated that gas had suddenly burst into the southern workings and exploded at their open lamps. There was a second explosion about 12 hours later, by which two lives were lost; the engineman of the underground pumping engine, with his mate, on proceeding to the place where the first explosion occurred, ignited with their lamps the gas which had again collected. It appears from the official inquiry that the mine gas issued from a cleft in the floor of a heading which must have been in communication with a washed-out cavity.

AN ILLINOIS MACHINE COAL MINE.

Written for the Engineering and Mining Journal by Our Special Correspondent.

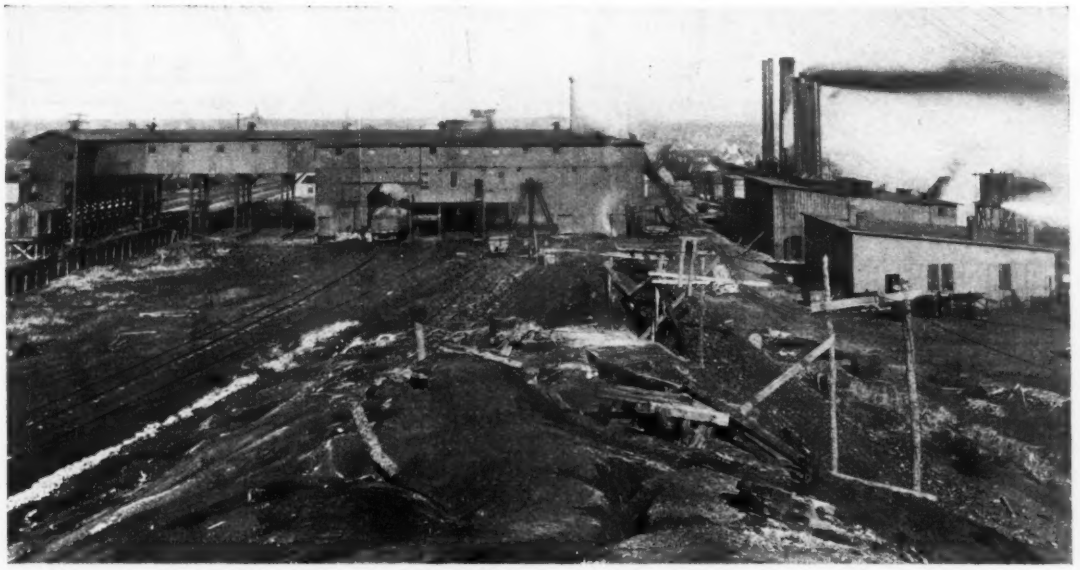
Mine No. 6, owned by the Consolidated Coal Company of St. Louis, is within the limits of the town of Staunton, Macoupin County, Ill., on the Wabash Railroad, 38 miles from St. Louis.

This mine is the largest machine mine west of Pennsylvania. It is said to be the largest producer of coal in Illinois, having a daily output of 1,000 tons of lump coal and 400 tons of fine coal. The mine employs about 400 men, including top and bottom forces. The shaft has at present 200 working places, about 10 miles of old works and 12 miles of new works. This shaft is 329 feet deep and mines on seam No. 6 of Illinois Geological Survey, which has at this point an average thickness of 6½ ft.

The tower floor and trestles for storing coal are 400 ft. × 100 ft. About 125 tons of coal are furnished to locomotives during twenty-four hours. The accompanying engraving is a general view of the surface works.

The hoisting engines, air compressors, boilers, machine shops and blacksmith shops face the shaft on its long dimension. The shaft is 7 × 14 ft., and the engines hoist on the side of the shaft; cars are bumped on and off the cage. Hoisting engines of the Litchfield manufacture, double and first motion, having cylinders 16 × 30 in., are placed between the boilers furnishing steam to the air compressor and those giving steam to the haulage and hoisting engines.

Four tubular boilers, 60 in. × 16 ft., afford the power for the compressor, while two boilers, 30 in. × 22 ft., two 30 in. × 24 ft. and two 60 in. × 20 ft. send steam to the hoisting engines, haulage engines and



MINE NO. 6, CONSOLIDATED COAL COMPANY, STAUNTON, ILL.

screen engines. Railroad cars are switched and brought to the loading place by a small surface tail-rope.

Shaking Screens.—There are at this mine three shaking screens run by a 60-H. P. slide-valve engine. Only one of these screens is required to clean a daily output of 1,400 tons of coal. Power is transmitted from the engine to the shaft, from which these screens receive their motion by a 12-in. belt, running to a driven pulley of 3 ft. diameter. The shaft is 3 in. in diameter and carries three pairs of eccentrics of 8-in. throw. Two of these eccentrics are attached to each screen and are staggered, so that each occupies a different relative position. Pitmans of hard wood, 3 × 4 in., connect the eccentrics to the screen. Coal is dumped upon these screens by the ordinary "kick-up" dumps. After passing through the apertures of the shaking screen the small coal falls into wooden pockets, and is elevated to revolving screens by two flights of elevator buckets.

Boys seated on each side of the shaking screen pick out the slate and sulphur as the coal passes over the screen. When there is no coal upon the screen the weighman checks the screen's motion by pulling a cord attached to the governor of the engine running the screens. This engine requires no attention beyond an occasional oiling.

Haulage Plant.—The endless rope system of haulage is used in this mine. The haulage engine—a Hamilton-Corliss of 120 H. P.—is placed on the surface, directly in the rear of the hoisting engines. There are four drums, each 5 ft. in diameter; two are geared to the engine shaft and two act as idlers. One drum and idler are used to haul from each side of the shaft. Friction clutches are used, so that, if necessary, only one rope can be used. The drums can very easily be thrown in and out of gear. A ¾-in. steel rope is used for the haulage. There are five laps on each drum. Electric signals communicate with the underground workings, and in case of accident the engine ropes can be stopped at once. The ropes pass under the hoisting engine, and after being led over sheaves 43 inches in diameter are let down the two corners of the shaft. A view of this engine is given in the cut herewith.

Steel plates are nailed over the shaft corners and prevent the haulage ropes from striking the cages. At the shaft bottom the four ropes are deflected at right angles by four sheaves of 43 in. diameter each, two ropes passing to one side of the shaft and two to the other. These sheaves are set in the sump. The rope is passed around the angles on the main

entry by crowd rollers placed from 6 to 8 ft. apart. These rollers are fitted on 1½-in. wrought-iron spindles driven into bored holes in oak timbers 14 in. square and 10 ft. long. The lower part of the spindle is threaded and a nut is screwed upon the under side of the timber. A collar and set-screw prevent the crowd-roller from being pulled off of the spindle by the action of the rope. The timbers carrying the rollers are set 3 ft. into the solid coal on the inside of the curve. The roller is 14 in. in diameter and 4 in. deep, having a groove 1½ in. deep. They are made of cast-iron and are bored out to fit the spindles.

The rope is supported every 30 ft. by cast-iron rollers set in modern brackets spiked to the road ties.

On the west side the cable is passed into the front entry of one pair of cross or butt entries over a 5-ft. bull-wheel at the last crosscut and out of the back entry. The coal is pulled by mules from the other cross-entries to a station at the bull-wheel, whence it is gripped to the shaft-bottom. On the east side the rope runs directly to the face of the main entry, which is double tracked its entire length, and passes over a 5-ft. bull-wheel. Here also the coal is brought from the cross-entries to the rope by mules. The Morgan grip is used. This grip has a malleable iron shoe which can be replaced, when worn out, in a few minutes' time. Upon the empty rope, when the grade is in favor of the cars, the grip is taken off, and cars are allowed to run by gravity. Ten gripper-boys, five on each rope, pull the coal to the bottom, and twelve mules, six on each side, haul the coal to the stations on the rope. Three trips of 10 cars each, cars and loads together averaging 1,500 lbs., are on each rope at one time.

There are over 25,000 feet of rope in this cable, and it is run at an average speed of four miles per hour. As the load is gripped to the rope, the engine valves are regulated by a governor and more steam is given the engine.

The haulage ropes are kept taut by means of two large iron weights hung in the rear of the haulage-engine. Two cars bearing each a sheave wheel 5 ft. in diameter, run upon iron tracks directly behind the haulage engine. A 1-in. wire rope runs from each car to an upright frame upon which are placed two pulleys 2 ft. in diameter. The ropes attached to the cars pass over these pulleys on the frame and are attached to two weights of 15,000 lbs. each. These ropes hang freely upon the frame, and as the rope alternately lengthens and shortens they maintain a constant tension.

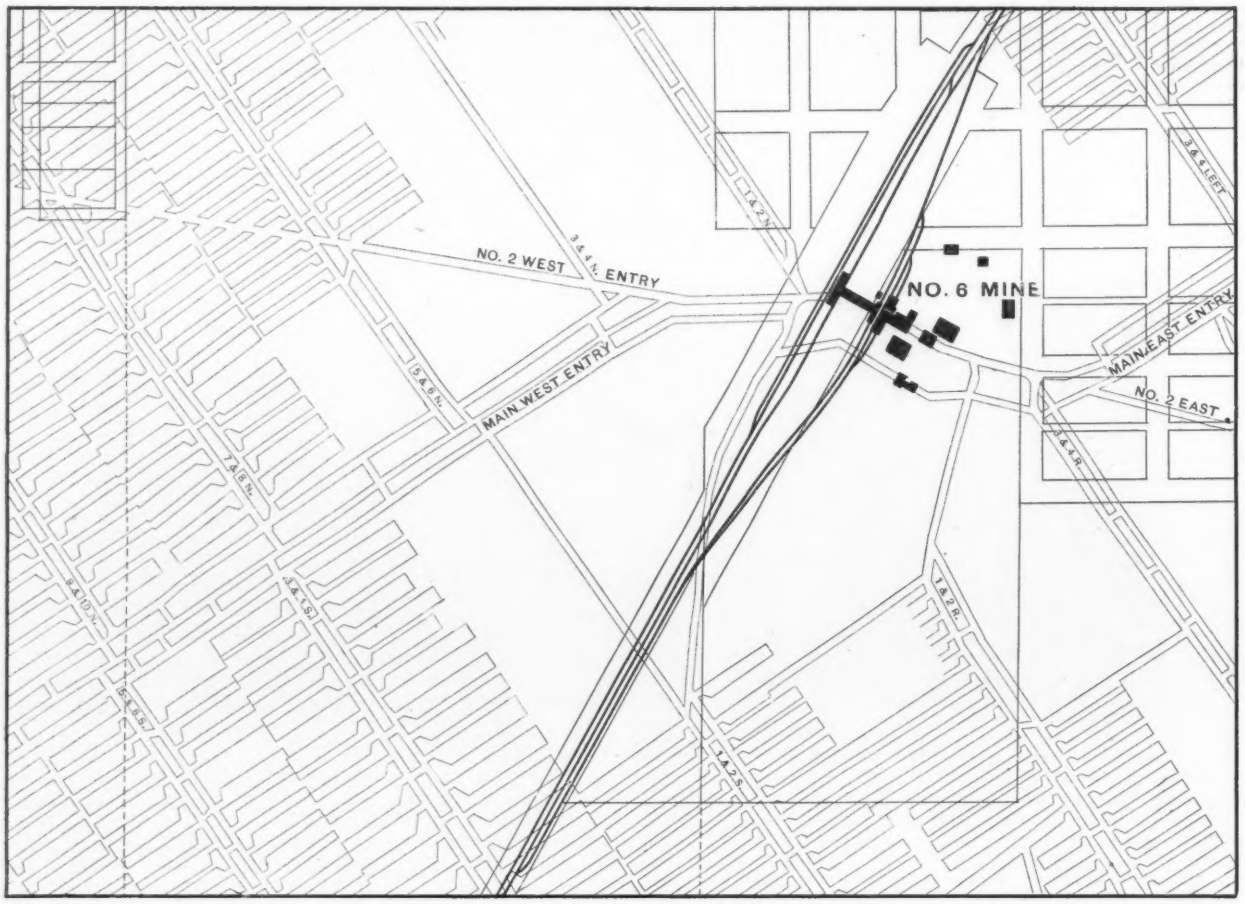
Although these two ropes pass around angles varying from 60° to 90° on the entries, and over angles of 90° at the top and bottom of the shaft as well as over heavy grades in the roadway, the entire plant is giving satisfaction. The coal is put upon the cage at the shaft bottom for 3c. per ton.

Formerly this mine required 40 mules to produce a daily output of 1,000 tons, when mules were used exclusively; now only 12 are required, and when the work is laid out differently this number will be decreased.

Ventilation.—A fan 20 ft. in diameter, giving over 100,000 cu. ft. of air per minute, is used for ventilation. This fan forces air down the air-shaft, 200 ft. from the main shaft. The air is split twice, two currents going to one side of the shaft and two to the other. The main haulage roads are used as return air courses, and the hoisting shaft is used as an upcast. An air course 20 ft. in width is carried on each side of the main haulage entries. As the roof is strong and requires little timbering, the air-courses in this mine are quite large.

Main Entries.—The mine has been worked out along one main entry on each side of the shaft, and a new main entry has been driven through the old works of the other, to reach solid coal. These old main entries are used as air courses and escape ways. The new entries are turned so as to get on the cleat. The top slate has all been taken down on the main entries, and the roof is of rock. The main entry on the east side has been connected with an abandoned shaft, No. 5, and it is used as an escape way. All main entries are driven 20 ft. wide and are double-tracked their entire length.

Cross-Entries.—These are driven in pairs from the main entry at distances of 400 ft. The pillar left between the two cross-entries is 30 ft. Slate is generally timbered and held up in cross or butt-entries, and slack is gobbed in them. These butt-entries are driven 20 ft. wide and beyond that width no additional cutting is paid for; this ensures straight entries. The map of a part of the mine, given herewith, illustrates the method of working.



PLAN OF PORTION OF MINE NO. 6, CONSOLIDATED COAL COMPANY, ILLINOIS.

In order to keep both crosscuts and entry advancing at the same time the switch for the crosscut has a straight piece of track attached to it, and crosscut and entry can be reached by the machine in their turn. Twelve-pound iron is used for tracks in cross-entries.

Rooms.—Rooms are generally widened out on the left, slack is gobbed on both sides. Props in the rooms are usually recovered. A signboard, 4x8 in., is placed at the mouth of each room. This board has chalked upon it the number of the room, and the mine examiner's remarks as to its freedom from gas and the state of the roof. About 200 rooms are working at the present time. Rooms are widened out to a total width of 40 ft., and the machine runner is restricted to this width. By this means sufficient room-pillar is ensured. Rooms are generally driven 200 ft. deep, though in good coal, where a room on the other entry has not been worked up to its full depth, they are sometimes driven to a depth of 300 ft. All rooms are turned at distances of 60 ft. apart. The cleat in this coal is very open, so much so that, as the rooms run with the cleat, they can be run straight by following the cleat. In this mine the cleat has a bearing of S. 53° W. All wide work is put with the cleat. Rooms are turned 15 ft. wide under bad top and 20 ft. wide under rock top, and the neck is 20 ft. deep. The right and left ribs are kept very straight, and no gouging is permitted. Especially is this the case when the room is widening out. This is in marked distinction to the practice at solid-shooting mines. About 66⅔ of the coal in the bed is mined, the remainder being left for pillars. The pillars in this field are never mined, being left in so as to not injure the surface, which is valuable farming land.

Roof.—This field of coal has a magnificent limestone roof 25 ft. in thickness. After the slate next the limestone is taken down the rock

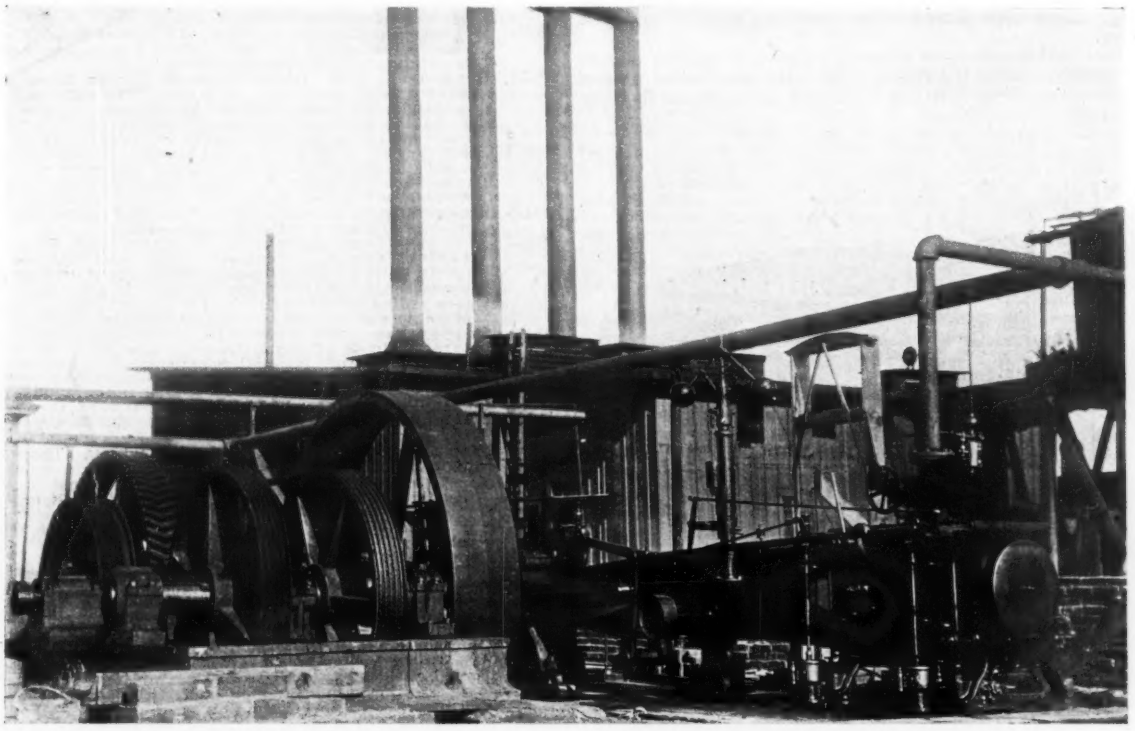
requires no support whatever. The slate has an average thickness of 2 ft. From the shaft bottom to the face of the east and west entries, with the exception of the light timbers supporting the cable signal wires, there is not a single set of timbers.

The shaft being so small (7×14 ft.) in relation to the extent of the workings the cages in their rapid descent and ascent alternately compress and expand the air. In any portion of the workings the lamp-flame will show by its movements whether the cage is in motion or not. The policy of this company is to ventilate all old workings. Experience has shown that this plan is safer than stopping them off from the newer workings. Under such an impenetrable roof gas in any quantity would acquire terrific force in an explosion, especially were it confined behind stoppings. When these old works are shut off from the newer portion of the mine there is a constant danger of inadvertently holing into them and releasing gas.

Machines.—Nineteen Harrison and three improved Yoch mining machines are used in this mine. A Norwalk air compressor having an inlet cylinder of 22 × 30 in.; a compound cylinder of 17½ × 30 in., and a steam cylinder of 20 × 30 in. furnishes the power for these machines. One machinist keeps all these machines in repair.

The yield of coal per 24 hours from each machine is generally 100 tons. All this coal is carefully forked. The machines cut in the bottom coal, as there is no fire-clay below the coal-bed. A "blue band," 2 in. in thickness and containing iron pyrites, is found 10 in. above the bottom of the coal. The cutting is very hard. One machine is placed in each entry, and every machine runs double shift. The night man usually cuts entries and necks of rooms, while the day man cuts the wide work in rooms. The machines undercut 5 feet in depth and the width of the machine board—5 ft.—at each setting of the machine. The average amount of cutting per shift varies from 200 to 250 sq. ft. Machine runners and helpers are paid by the square feet of undercutting made in each month. The price paid runners is 1c. per square foot, and helpers ½c. per square foot. Every working place in the mine is measured twice during each month.

In order to drain the air pipes of water, small receivers, 4 × 2 ft., are placed near the working places inside and these are blown off once every shift.



HAULAGE ENGINE AT MINE NO. 6, CONSOLIDATED COAL COMPANY, ILLINOIS.

GOLD STEALING IN THE SIBERIAN PLACERS.

By E. D. Levat.

In his recent report on the "Gold Mines of Eastern Siberia," M. Levat says that this question of the theft of gold in all the Siberian placer workings is a much more important one than might be supposed at the first glance, and everywhere the operators suffer from it in some degree. It seems almost impossible to stop it completely, but a remedy may be applied to limit it. The use of mechanical apparatus to wash the gold-bearing gravel would from this point of view be of very great advantage by diminishing proportionately the opportunities of the workmen. By the system of washing commonly used in many of the placers nine men are employed in the service, and at least twice a day they have an opportunity of handling the clean-up from the washer. In the placers of the Onon, particular facilities are offered for stealing by the neighborhood of the Chinese frontier over which stolen gold can easily be carried, and the existence in the neighboring villages of an organized band of buyers. Moreover, the theft is favored by the custom of leasing the work out to contractors, all of whom steal nuggets whenever an opportunity presents itself.

In such a case it is of course impossible to give exact figures. Nevertheless, MM. Levat and Theodore Sabachnikoff made some careful experiments in some of the placers of the Onon. When they assisted personally in the clean-up they always found a number of nuggets, frequently reaching the size of an almond, but on other days no nuggets were ever found. The average tenor of the gold-bearing gravel worked is about one zolotnik; the average returned by the contractors to the accountant reaches about 70 dolis. The difference, 26 dolis, is the loss in washing and by theft. As a number of trials showed that the average of the tailings was 10 dolis per 100 pouds, they estimated the stealing at 16 dolis to the 100 pouds, or about 20% of the gold obtained. This figure is believed to be rather below the truth than above.

This habit of theft is so inveterate with the Siberian miner that the most severe regulations produce no effect. Besides this, it is notorious that the workmen prefer those placers where the food supplied is comparatively poor, but where the managers are careless, to where the workmen are better treated and perhaps better paid, but are strictly watched. They do not like the well-organized companies, because their chances for stealing are diminished. Mining engineers who have had charge of placer works in the Transbaikal understand this very well. The Company of the Onon is well known in Eastern Siberia for the excellent care which it takes of its workmen, and the memory of the late M. Vassili Sabachnikoff, who organized the works, is regarded almost with venera-

tion. Nevertheless the prospectors rather avoid the employment of this company.

Apart from the question of simple theft, the system of contract work so common in the placers has many drawbacks. The working contracts invariably provide that the surface earth and other waste matter shall be deposited away from the tailings, and that both shall be carried outside of the gold-bearing gravels. But it is very difficult in practice to enforce these regulations. Usually the contractors' whole object is to get as much as they can out of the season's work, since the contracts are usually made for one season only. With this motive they simply go over the deposits without any method or any care for the future, working the richest pockets which they can find. At the end of the season the workings are left in a condition which makes it very difficult, if not impossible, to continue there. The excavations have not been made with a sufficient slope, so that there is sure to be a great deal of caving during the winter. The drainage ditches, hastily and carelessly made, are also sure to cave in and be stopped up, so that in the spring it is necessary to do all the work over again. Many cases were found by M. Levat, especially in the Sergievski, Innokentievski and Blagoviestshensk placers, where the waste strippings were piled up on the unworked sections of the placer, thus making new operations much more difficult and costly.

For all these reasons the contract system should be very carefully considered and avoided wherever possible in all cases where the mines are to be worked for any length of time. The work of contractors and *staratieli* should be confined to the reworking of old tailings, of which there are usually large accumulations, and this should be done as far as possible from the existing workings. It is added that at the present time the contract system is being dropped almost everywhere except in the placers worked by the Imperial Cabinet, where it is retained because it reduces to a minimum the superintendence required.

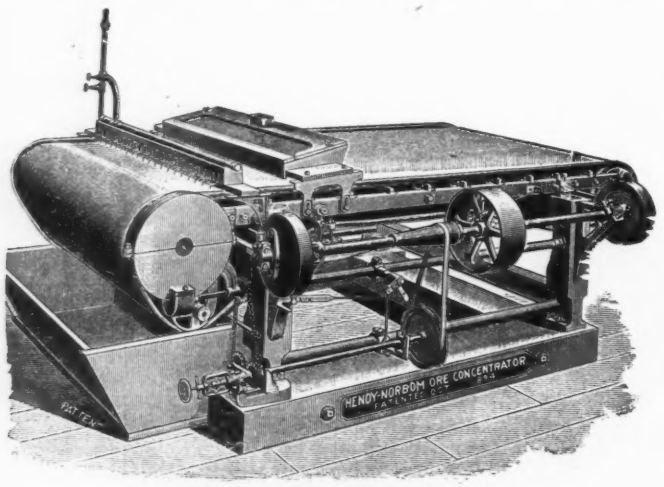
German Trade in the Far East.—Prospects for German exports to Eastern Asia are to be intelligently studied by a commission of experts sent out by the Ministry of Commerce and charged with the duty of opening up further opportunities for German commerce, and of studying prospective Japanese competition.

THE HENDY-NORBOM CONCENTRATOR.

The accompanying illustration shows an improved form of concentrator devised by John O. Norbom, and manufactured by the Joshua Hendy Machine Works, San Francisco. It is of the endless belt variety, built entirely of iron, the shaking frame or belt-carrying table being of heavy channel irons. The eccentrics on the driving shaft are adjustable, so that the table can be given different degrees of stroke, the 1 in., 1½ in. and 2 in. being the strokes mostly used. Either canvas or rubber belts can be used, as deemed better adapted to the character of the ore treated. Devices are provided for adjusting the grade of the table and also for adjusting the travel of the belt. The mechanism which controls the motion of the table consists of four curved springs upon which the shaking frame rests, two of these springs being placed on each side of the frame, but curved or bent in opposite directions.

The driving shaft as shown is fitted on one side, and the eccentrics on this shaft, when imparting a side motion to the table, cause the two springs on one side to bend downward and the two opposite springs to straighten upward, which gives to the table a peculiar, gentle, side-tilting movement. The longer the stroke the greater the tilting; the shorter the stroke the less the tilting. It therefore follows that this concentrator can be operated on two different principles: 1, with the use of a rubber belt and giving a quick side-shaking motion and short stroke, producing a slight, gentle tilting or dipping of the edges of the belt; or, 2, using canvas belt, giving a slow slide, shaking motion and long stroke, producing an increased tilting of the table. It is claimed that this double adjustability enables this concentrator to adapt itself to a greater variety of gold-bearing ores.

It is also claimed that it permits of a very close saving, for the simple reason that the combination of the side-shaking with the tilting motion obviates the tendency of the pulp to pile up along the edges of the belt,



THE IMPROVED HENDY-NORBOM CONCENTRATOR.

which naturally decreases the width of effective belt service and decreases the capacity of the machine. In this concentrator the 5 ft. wide belt is all effective surface. The loss of sulphurets which necessarily results in the pulp banking up on the sides of ordinary side-shaking vanners is obviated.

This machine is intended to meet the demand for a concentrator that can be adjusted in the mill to suit the character of the material treated, thereby avoiding the expense and inconvenience of changing the machine if the first adopted is found unsuitable for the work.

German Electric Contracts.—Recently the Berlin firm of Siemens & Halske obtained, against British bids, the contract for lighting the City of Mexico, and the same company is to develop the electric lighting system of Moscow. In Germany itself there is great activity in electrical development, and the latest project is for an electric road from Leipsic to Dresden.

Lead Mine Waste for Ballast.—The Cleveland, Cincinnati, Chicago & St. Louis Railway Company is making trial of chats—waste or refuse from the concentrators at the Missouri lead mines—for ballast. It has been used for that purpose on railroads near the mines, and has been offered to the company named, which has little good material for ballast available on some of its lines in Southern Illinois and Indiana.

Coal in German East Africa.—At the November meeting of the German Geological Society, the president, Geheimrat Hauchecorne, made a communication as to the find of coal in East Africa, between the Nyassa and Tanganyika lakes, by Bergassessor Bornhardt, who was induced to undertake this exploration through coal having been observed in a stream. He noticed a seam 5 m. thick, with a second overlying it of about half the thickness, in cutting 12 km. northeast of the Nyassa. The seams only contain coal of two descriptions, one a shining coal (*Glanzkohle*) that blisters and cakes even in the flame of a spirit lamp, and the other a dull coal (*Mattkohle*). The seams occur alternately, showing on analysis 9% and 15% of ash content, with 7,000 metric heat units and 6,000 metric heat units respectively. At the suggestion of Bergassessor Bornhardt the Nyassa coal was compared with some coal brought from the Transvaal by Bergrath Schmeisser, on which it became evident that the coals from both districts are of the same geological age.

A South American Trading Congress.—Arrangements have been completed for a conference of merchants from South America, West Indies and Mexico, which is to be held at the Philadelphia Museum in June next for the purpose of conferring with the representatives of boards of trade and chambers of commerce from all parts of the United States. Delegates will attend from the following foreign chambers of commerce: Panama, Lima, Buenos Ayres, Rosario, Rio de Janeiro and St. Paulo, Brazil; and also representatives from other commercial organizations in Bahia, Pernambuco and Para, Brazil; Venezuela, Central America and Mexico and West Indies. This will be an important gathering of South American business men, and a notable fact is that a great majority of the delegates, while thoroughly acquainted with Europe, visiting the principal cities of England, Germany, France and Austria regularly each year, have never been to the United States.

PATENTS RELATING TO MINING AND METALLURGY.

United States.

The following is a list of the patents relating to mining, metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

WEEK ENDING JANUARY 19TH, 1897.

575,338. APPARATUS FOR MANUFACTURING SALT. Herman J. Demuth, Edward N Perkins and Joseph T. Dade, Hutchinson, Kan. An evaporating chamber with a furnace and flues.

575,373. HOISTING AND CONVEYING APPARATUS. Peter Rasch, Cleveland, O. The combination with a pier structure of two or more bridges adapted to have lateral motion upon the structure.

575,377. GOLD SEPARATOR. Albion M. Rouse, Denver, Colo. Assignor to the Miners' Relief Association, same place. The combination of a tank for containing the separating liquid having a top provided with downwardly projecting points or bosses and a bottom provided with ribs forming channels, endless chains arranged within the tank and provided with points or bosses arranged to pass between the points or bosses on the top and in the channels on the bottom, and means for moving the chains, a chamber at one end of the tank and communicating through means of an opening with the channels, and a valve for closing the opening.

575,435. STONE DRESSING MACHINE. John Spencer, Keighley, England. The combination of a rotary cutter, a spindle and feed.

575,467. PROCESS OF TREATING COMPLEX SULPHIDE ORES. Francis Ellershausen, London, England. The process consists in rapidly heating the crushed ore (to which a sufficient quantity of fluxing material has been added to prevent oxidation) to red heat in a sump in a reverberatory furnace, and then adding to the mixture, kept in a heated state, a sufficient quantity of molten metallic iron to effect the desulphurization of the ore.

575,474. GAS GENERATOR FOR ACETYLENE. Henry F. Fuller, Chicago, Ill. Assignor to the Walmsley, Fuller & Company, same place. The combination of a holder for the solid material, comprising a shelf having partitions at intervals on its upper side forming compartments, the shelf inclining downward within the generator with relation to the liquid-level therein.

575,495. GYRAL PULVERIZER. Albion M. Rouse, Denver, Colo. Assignor to the Miners' Relief Association, same place. This is a pulverizer of the revolving cone type.

575,518. PROCESS OF PRODUCING MALLEABLE CAST IRON. Thomas Doherty, Sarnia, Canada. The process consists in charging a cupola with fuel and metal, raising the heat of the contents of the cupola to a high heat and liquefying the metal with the aid of an air-blast, injecting steam in connection with the air-blast through the metal, and regulating the steam-jet until the flames above the molten iron show a distinct hydrogen color.

575,549. CRUSHER-HEAD. Henry D. Hibbard, High Bridge, N. J. Assignor to the Taylor Iron and Steel Company, same place. A water-toughened manganese-steel crushing-head for gyratory stone-crushers, having a central cavity, and a circular row of holes extending from about midway of the thickness of the metal at the base of the cone or head to its central cavity.

575,614. HYDRAULIC AIR-PUMP. Adolph G. Noack, Brooklyn, N. Y. Assignor to the Berner-Mayer Company, of Ohio. The combination of a chamber having air inlet and outlet valve mechanism, a traveler actuated by the water within such chamber, water-inlet channel, and a water-outlet channel.

575,625. METHOD OF AND APPARATUS FOR PRODUCING WATER-GAS. Walter R. Addicks, Boston, Mass. The combination with a gas-generator, and a chamber containing refractory material of a hydro-carbon-mixing chamber provided with an oil supply and connected with the generator.

575,646. JIG FOR MINERAL OR ORE WASHING. Charles J. Hodge, Houghton, Mich. The combination with alternately-operating plungers, reciprocating cross-heads guide rods, stationary cross-heads and pitmen.

575,669. SEPARATION OF METALS AND METALLIC COMPOUNDS FROM ORES OR OTHER SUBSTANCES. George Robson, Dolgelly, England. Assignor to himself and Samuel Crowder, London, England. Patented in England January 8th, 1894, No. 427; in Transvaal April 2d, 1894, No. 617; in France July 5th, 1894, No 239,819; in Germany November 24th, 1894, No. 82,722; in Victoria October 29th, 1895, No. 12,628; in New South Wales October 31st, 1895, No. 6,163; in South Australia October 31st, 1895, No. 3,075, and in New Zealand November 5th, 1895, No. 8,035. The process consists in intimately and thoroughly mixing the finely-divided substances with a diluent liquid containing a fatty substance, so that the metallic portions are taken up by the fatty substance, then removing the oily liquid with metallic matter from the finely-divided substances, and then separating the metallic matter from the oily liquid.

576,677. METHOD OF AND APPARATUS FOR GENERATING ACETYLENE GAS. Henry F. Fuller, Chicago, Ill. Assignor to the Walmsley, Fuller & Company, same place. The method consists in conveying the generated gas through a conduit immersed in a body of water, thereby vaporizing the water by the heat of generation in the gas, and bringing the vapor thus obtained into contact with calcium carbide.

Great Britain.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

WEEK ENDING DECEMBER 26TH, 1896.

23,492 of 1895. W. H. James and C. J. Norris, London. Solvents for gold formed by the action of oxides of nitrogen on halogen compound in combination with cyanide.

24,546 of 1895. R Langhans, Berlin, Germany. Producing electrolytically protective coatings consisting of earthy oxides.

2,210 of 1896. A. Morris, Aberdare. Improvement in the shape of miners' coal boxes.

5,493, of 1896. C. S. Smith, Derby. Safety props for supporting cages in the head gear of pits in cases of overwinding.

WEEK ENDING JANUARY 2D, 1897.

23,459 of 1895. E. Andreoli, London. Electro-deposition of gold on iron cathodes in presence of peroxide of lead anodes.

24,834 of 1895. F. Berkeley, Durham. In screening coal, an automatic regulator for the delivery of the coal.

338 of 1896. H. Bower, Philadelphia, Pa., U. S. A. Method of separating cyanides from gas liquor.

1,459 of 1896. E. L. Oppermann, London. Improvements on the patentee's process for extracting gold from ores by means of vapor of mercury in a current of steam or air.

PERSONAL.

MR. WALTER M. CHADWICK has been appointed superintendent of the Orford Copper Company's works at Constable Hook, N. J.

MR. JAMES PARFET, formerly of the Lincoln mines, has been appointed general manager of the Newark mine, near Gillette, Colo.

MR. G. A. SONNEMANN, Superintendent of the Bunker Hill and Sullivan mine, Idaho, has been visiting mines near Rossland, B. C.

MR. CHARLES H. ROWE, business manager of the Pittsburg (Pa.) Wire Company, has resigned, and is succeeded by MR. JAMES A. FARRELL.

HON. THOMAS MAYNE DALY, ex-Minister of the Interior for Canada, has opened a law office in Rossland, B. C., where he will permanently reside.

COL. I. N. PEYTON, who is one of the trustees of the Le Roi mine, has just returned to Rossland, B. C., from an extended trip to Santa Barbara, Cal.

MR. JOHN B. FARISH, mining engineer of Denver, Colo., recently arrived in New York. He expects to remain here a short time, when he will return to the West.

MR. MARTIN TULLGRENE, formerly of the Homestake mine in the Black Hills, S. Dak., is now superintendent of the Columbian mine, in the Virtue District, Ore.

MR. E. C ENGELHARDT, the well-known metallurgist of Denver, Colo., has accepted the position of Superintendent of the Page Reduction Works, now being built at Florence.

MR JOHN L. THOMSON, for many years superintendent of the Orford Copper Company's works at Constable Hook, N. J., has resigned his position with that company. His present address is 99 Avenue B, Bayonne City, N. J.

MR. LUDWIG KLOZ, formerly connected with the Consolidated Kansas City Smelting and Refining Company, has been appointed superintendent of the works of the Missouri Smelting Company, at Cheltenham, Mo., near St. Louis.

MESSRS. THEODORE DWIGHT and CHARLES H. WARNER have formed a copartnership as consulting electrical engineers, and will make a specialty of the application of electricity to mining. Their office is at 13 Burling Slip, New York.

MR. PERCY L. FEARN, mining engineer, of the firm of Olcott, Fearn & Peele, left New York on the *Campania* January 30th for Cairo, Egypt. Mr. Fearn expects to return in about six weeks, after attending to some mining business in London.

COL. JOHN M. WILSON has been nominated by the President to be chief of engineers, United States Army, with the rank of brigadier-general, to succeed GEN. W. P. CRAIGHILL, retired. Colonel Wilson has been an able and efficient officer, and has served in the engineer corps for many years.

MR. FRANK THOMSON has been chosen president of the Pennsylvania Railroad Company, to succeed the late George B. Roberts. He has been for 38 years in the employ of the company, having entered the Altoona shops when a boy of 17. He has passed through all the grades and for some years past has been first vice-president of the company.

MR. W. WESTON, consulting mining engineer, of Cripple Creek, Colo., and Manager of the Good Will Tunnel and Mining Company, has just returned from Arizona, where he went to report on a very large silver and gold property for British capitalists. The property is at White Hills, 53 miles north of Kingman, and not far from the Colorado River.

MR. JAMES W. PAUL, mining engineer, has been appointed by Governor-Elect Atkinson to the office of State Mine Inspector of the first inpection district of West Virginia. Mr. Paul is a graduate of the engineering department of the University of West Virginia, and during 1894-95 was a special student in the School of Mines, Columbia University, New York.

MR. J. W. SCHOFIELD, receiver of the Union National Bank, of Denver, was elected president of the Little Annie Mining Company at a meeting of the directors, held at Aspen, Colo., on January 27th. Mr. Schofield takes the place of MR. ALBERT SMITH, resigned. The resignation of MR. S. I. HALLETT as manager was accepted and MR. THOMAS E. BEAMS was appointed.

MR. JOHN BYRNE, of Butte, Mont., has been appointed by Governor Smith to the place of mine inspector. Mr. Byrne is a practical miner, of 16 years' experience in quartz mines, and has been an active miner all that time. For 13 years he has been in Butte, where he is now employed in the High Ore mine, having been both a shift boss and mine foreman much of the time. He has been employed in most of the large mines in the camp and is a member of the Butte Miners' Union.

OBITUARY.

W. J. THOMAS was killed at Ward, Colo., on January 25th, by an explosion of giant powder, which he was thawing out in his cabin. He was a half-owner of the Virginius claim near the Ward-Rose mine. He was 42 years old.

ALFRED BORWICK died at Oroville, Cal., January 24th, of pneumonia. Mr. Borwick was the senior partner of the firm of Bischoff & Company, of London, Eng., and the principal owner of the Golden Feather and Banner mines, in Butte County. He came to California early in December to reorganize the above properties. His remains will be sent to England.

CHARLES SWAN, aged 65, for many years superintendent of the John A. Roebling Wire Works, died suddenly at Trenton, N. J., on January 28th, of heart disease. He was superintendent of Roebling's while that firm was building Brooklyn bridge; had charge of all the factory work for the structure and patented a number of devices used on it. He retired from business some time ago.

ELISHA S. TERRILL, postmaster at Banner, Wyo., died January 21st, aged 70 years. Mr. Terrill was one of the California '49ers and has been a pioneer in several of the Western States and Territories. He was the discoverer of gold in the Bald Mountain Mining District of Sheridan County and was instrumental in the work of developing the mineral and other resources of Northern Wyoming during his entire residence there.

W. H. CRAVEN, secretary of the De Beers Consolidated Mines, Limited, died recently at Las Plamas, in the Canary Islands, where he had gone to regain his health. He was born in 1839, and went to South Africa in the early sixties, engaging there in the banking business. In 1872 he went to Kimberley as first manager of the local office of the Standard Bank there. Subsequently he received the appointment of receiver of the Kimberley Mining Board debt, which office he held till the amalgamation of the mines in the year 1888, when he was apointed secretary of the De Beers Consolidated Mines, Limited. This office he retained at the time of his death.

SOCIETIES AND TECHNICAL SCHOOLS.

ROYAL COLLEGE OF SCIENCE, LONDON.—This institution, with which is incorporated the Royal School of Mines, has issued its prospectus for the session of 1896 97. The Royal College of Science at South Kensington is supported by the State to supply systematic instruction in the various branches of physical science to students of all classes.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—A meeting was held at 112 Mansfield street, Montreal, on Thursday, January 28th, 1897, at which abstracts of the following articles were read by the members of the committee: "Water Power, Its Generation and Transmission:" "Water Power of Caratunk Falls, Kennebec River, Maine;" "Transverse Strength of Beams as a Direct Function of the Tensile and Compressive Strength of the Material;" "The Underpinning of Heavy Buildings;" "Methods and Results of Stadia Surveying;" "The Liverpool Waterworks."

IOWA SOCIETY OF CIVIL ENGINEERS AND SURVEYORS.—The ninth annual meeting was held at Ottumwa on January 20th and 21st. The president's address was a general summary of the engineering business in the State for the past year, and contained many good suggestions for the future.

The following are some of the papers that were read: "The Refining Works of the Standard Oil Company at Whiting, Ind.," by L. H. Stone, C. E., of Des Moines; "The Coal Mines near Fort Dodge," by F. L. Easley, C. E., of Fort Dodge, "The Geology of the Coal Measures," by J. T. Beard, of Scranton, Pa.; "The Cedar Valley Quarries," by J. M. Brown, C. E., of Cedar Rapids. The following officers were elected: President, C. R. Allen, of Ottumwa; vice-president, G. Davis, Cedar Rapids; secretary-treasurer, Seth Dean, Glenwood. Directors: Wm. Steyl, of Burlington, and F. L. Easley, of Fort Dodge.

MONTANA SOCIETY OF CIVIL ENGINEERS.—The members visited the Anaconda Company's coal mines at Belt on January 8th, and under the guidance of the officials made a thorough inspection of the works. The business meeting was held on January 9th, when the following officers were elected: C. W. Goodale, president; A. E. Cumming, vice-president; M. S. Parker, second vice-president; A. S. Hovey, secretary and librarian; J. S. Keerl, treasurer and member of the Association of Engineering Societies; F. W. Blackford, trustee. Mr. Herron, the retiring president, delivered the annual address, which was a summary of engineering progress during the preceding year. At the evening meeting Mr. Parker read a paper upon the "Construction of the Black Eagle Falls Dam," after which a discussion followed upon the relative merits of Milwaukee, Buffalo and other cements. C. W. Goodale read a paper on "The Consumption of Timber in the Mines," which gave carefully prepared data and information that was of great value to mine owners and managers. A paper was read by Mr. Parker on "Engineering Compensation." A banquet followed the business session.

INDUSTRIAL NOTES.

The Pottsville (Pa.) Iron and Steel Company's 19-inch and blooming mills resumed work January 28th.

The Sheffield Coal, Iron and Steel Company, Sheffield, Ala., is preparing to blow in its third iron furnace; the latter has just been increased from a capacity of 185 to 250 tons.

Jenkins Bros., manufacturers of Jenkins Bros. valves and standard packing, will move their Boston store, which is now under the management of Mr. J. D. Stiles, to 17 Pearl street on or about February 15th.

The Andrews-Hitchcock furnaces at Hubbard, O., employing about 200 men, will close down about February 10th. Nearly 20,000 tons of pig iron are stacked, and overproduction is given as the cause of the shut-down.

The annual meeting of the stockholders of the Riverside Iron Works was held last week at Wheeling, W. Va., when the old board of directors was re-elected as follows: J. N. Vance, Frank J. Hearne, J. D. Culbertson, W. H. Hearne and C. P. Dewey.

The Trenton-Rock Oil and Gas Company of Seneca Falls, N. Y., has been incorporated with a capital of $50,000 to produce and sell petroleum oil and gas for fuel. The directors are Henry Hamlin, of Smithport, Pa.; Chas. P. Collins, of Bradford, Pa.; Robert H. Rose, of Binghamton.

The R. F. Hawkins Iron Works, of Springfield, Mass., have filed a voluntary petition of insolvency with the view of liquidation or reorganizing into a stock company. The cause of the failure is said to be the lack of cash capital and dull times. Liabilities about $2,000,000, with nominal assets of about same figures.

The Aliquippa Steel Company, of Pittsburg, Pa., has elected these new officers for the ensuing year: Jos. G. Vilsack, president; C. A. Fagan, secretary and treasurer, and Joseph G. Kaufman, general manager. The company's plant at Aliquippa is running in full and is producing about 8,000 tons special quality of plate and sheet steel.

The Missouri Smelting Company, of St. Louis, has reorganized, with an increased capital stock of $100,000. Among the new directors are James Green, J. B. M. Kehlor, G. A. Madill and Webb M. Samuel. The office of the company is 904 Security Building, St. Louis; the works are at Cheltenham, Mo. The company is arranging to extend its business.

The Illinois Steel Company has reduced the wages of its 2,500 employees at South Chicago in amounts varying from 5% to 15%. Not a man was exempt from the reduction. At the company's branch works at Joliet, Ill., notice of a reduction of from 10% to 20% has been given. At the Bay View mills at Milwaukee, Wis., a general cut in wages went into effect February 1st.

The Bethlehem (Pa.) Iron Company has received a contract for making the shaftings and engine forgings for two big cruisers for the Japanese government. A cable from Russia tells of a very successful test there of the company's armor. The tested plate was one representing 1,500 tons of Harveyized nickel-steel side armor for the Russian battleship *Rostivlov*, all of which will now be accepted.

The Port Angeles Steel Company, recently organized at Pittsburg, Pa., to erect a large steel plant at Port Angeles, Wash., proposes a capital of $1,500,000, and the plan is to have the subscriptions made by furnace and steel plant workers, boiler-makers, machinists and molders. The committee on organization is Thos. J. Murphy, Pittsburg; Miles E. George, Port Perry; Wm. J. Weisser, Allegheny; Wm. M. Davis, Wilmerding, and John Cain, Port Angeles, Wash.

The annual meeting of the Brier Hill Iron and Coal Company was held recently, and the following directors were elected: George Tod, Henry Tod, William Tod, J. G. Butler, Jr., and H. H. Stambaugh. The directors organized by the re-election of the following officers: George Tod, president; Henry Tod, vice-president; J. G. Butler, Jr., general manager, and H. H. Stambaugh, secretary and treasurer. The only change made in the Board of Directors was the election of William Tod in place of the late John Tod.

The Pennsylvnia Lead Company has confessed judgment for nearly $1,000,000 in favor of George S. Griscom, trustee for creditors. The action was followed by a bill in equity, filed by Mr. Griscom, asking for the appointment of a receiver for the company, the Board of Directors joining in the petition. The court appointed George S. Griscom and H. E. Anderson, directing them to operate the works until further order of the court. The corporation was chartered in 1890 and has a capital stock of $1,000,000, of which J. E. Schwartz was the owner of $958,000. The officers of the Board of Directors are: J. E. Schwartz, president; George Faunce, vice-president; F. M. Schwartz, secretary, and H. E. Anderson, treasurer. The general office of the company is in Pittsburg and the works are in Robinson Township. The land and plant erected upon it are worth $637,000. Other assets include the advancement of $755,000 to the Pennsylvania Smelt-

ing Company of Utah and a considerable sum in book accounts and cash. The liabilities are about $1,400,000.

The J. H. Parsons Chemical Company, of Chicago, has had on the market for a number of years the Alkali Water Purifier, a boiler compound of much merit. The compound is the invention of Mr. J. H. Parsons, a graduate from the University of Michigan at Ann Arbor. The purifying properties of the compound are due to the fact that it reacts chemically upon the scale, producing salts of the water and throwing them out of solution, the precipitate thus formed having a specific gravity but little heavier than water, so that when the water is heated it follows the current to the surface, where it can be blown off. The compound effectually neutralizes the action of carbonic acid, rendering it inert, and at the same time saponifying any greasy or fatty substances which may enter the boiler from dirty water from the engine. It is not volatile and does not pass off with steam. It is endorsed by a number of the best chemists. Prof. Albert B. Prescott, of the University of Michigan, has tested the compound and certifies that it contains nothing that can corrode or act upon the iron in any degree whatever. The company's business with mines, smelters, etc., has been steadily increasing. They now supply upward of 100 mines in the West.

TRADE CATALOGUES.

The Edward P. Allis Company, the well-known manufacturer of mining machinery, has published a catalogue describing the Leyner drill and the Reliance and Leyner air compressors. The Leyner rock drill is not a new or untried machine, but one which has successfully stood the test of years of actual work in mines and tunnels, and has given uniform satisfaction. The company's latest improved types of air compressors have as their superior features: Dry air, high speed, greatest strength, full air supply, highest economy, greatest efficiency, uniform pressure, small floor space, least loss in clearance and complete cooling arrangements.

The American Diamond Rock Drill Company, New York City, in its latest catalogue shows the merits of this well-known method of drilling, by reciting the excellent work done by the company for various purposes in all parts of the world. For prospecting and for general mining purposes the necessity and value of the diamond drill is fully attested by the extended use of, and rapidly increasing demand for, the machine. Besides the company's well-known standard machines, the catalogue illustrates and describes for the first time several new patterns. All of them have been fully tested by actual practical working, and their efficiency thoroughly proven.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the *Engineering and Mining Journal* of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufactures in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the *Engineering and Mining Journal* are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

OMAHA & GRANT SMELTING AND REFINING COMPANY.—At the annual meeting held in Denver, the following directors were elected for the ensuing year: G. C. Barton, president; J. B. Grant, vice-president; E. W. Noyes, J. H. Millard, J. A. Thatcher, W. H. James and W. A. Rose.

ALABAMA.

The special legislative committee on mining and manufacturing has framed a bill to regulate the mining of coal in Alabama, which is to take the place of the present mine law. The bill provides for the appointment of a chief inspector at a salary of $1,500 per year, and two associate inspectors at $900 per year. It further allows of a check-weighman being furnished by the employees of any mine. Two grades of mine-foremen certificates are to be granted, as provided for in the bituminous mine law of Pennsylvania, namely, certificates of the first class to persons who have had experience in mines generating explosive gases and are otherwise qualified, and certificates of the second class to persons who give satisfactory evidence of their ability to act as mine foremen in mines not generating explosive gases. A clause in the proposed law that is likely to meet with opposition from those affected is the following: "No person shall act as foreman in any coal mine in this State generating explosive gases unless he is in possession of a first-class certificate of competency. Ninety days will be given to those now acting as mine foremen to perfect themselves for examination."

ALASKA.

ALASKA MEXICAN GOLD MINING COMPANY.—This company reports the clean-up for the month of December, as follows: Period since last return, 31 days; bullion shipment, $27,170; ore milled, 10,572 tons; sulphurets treated, 147 tons; of bullion there came from sulphurets, $6,661; working expenses for period, $20,664.

BALD EAGLE.—In March, 1894, the present owners paid $60,000 for this Sum Dum property with a drift on the ledge 200 ft. and an ore exposure of 125 ft., the pay streak being 2½ ft. wide and of an average value in gold of $65 per ton. During the first season, with a 4-stamp mill and concentrator, they produced $87,000 in gold bullion and concentrates. This year the mill was run continuously from May 11th to November 7th, producing $100,000. This amount was taken from a piece of ground 100×60 ft. in surface dimensions. The average of the ore was a fraction over $30 per ton.

JUNEAU.—These mines and mills, owned by Charles D. Lane, of San Francisco, were sold recently for $250,000 cash, to a foreign syndicate. This property is in Silver Bow basin, five miles from Juneau, and embraces 30 patented claims, one 30-stamp mill in complete order, and one 5 stamp prospecting mill. The mine has produced $72,000 and paid dividends amounting to $35,000. The ore, while it is low grade, averages $6 per ton gold, and is mined through open cuts.

ARIZONA.

YAVAPAI COUNTY.

IRON SPRINGS MINING COMPANY.—The machinery of this company, on the Last Chance mine, west of Prescott, has been sold at sheriff's sale. J. Samuels purchased the outfit for $700, which cost $7,000 to place. The machinery consists of a 5-stamp mill, concentrators, steam hoist, boiler and engines.

STANDARD & BUSTER.—It is said that the company which recently purchased these mines, in the Bradshaw Mountains, from John McKenzie, will shortly commence active operations working them. The Standard has a shaft down 150 ft. and has levels run, the longest being 140 ft. There is 8 ft. of good ore. The Buster has a shaft down 90 ft., and the longest level is in 110 ft. This claim also shows good ore.

CALIFORNIA.

CALIFORNIA DEBRIS COMMISSION.—The commission has received new applications to mine by the hydraulic process from D. Edgmon in the Woodpecker placer mine, near Forbestown, Butte County, to deposit tailings in a ravine; from John C. Murphy in the Big Chunk mine, near Kelsey, El Dorado County, to deposit tailings in Dutch Creek; from George W. Hadley in the Irish Hill mine, near Oleta, Amador County, to deposit tailings in a ravine; from Henry Whitehead and others in the Hawkeye mine, near Pine Grove, Amador County, to deposit tailings in Grass Valley Creek.

AMADOR COUNTY.

(From Our Special Correspondent.)

DENNIS KELLEY.—At this mine, on Pioneer Creek, 5 miles east of Volcano, the shaft is down 150 ft. on a 4-ft. ledge of good ore.

MASON-GRIESBACH.—This mine, at Pioneer, produced $16,000 last year. The shaft is down 180 ft. on high-grade ore, and the 2-ft. vein has been prospected for 400 ft. The ore is crushed at the Gracey mill.

TOM & DICK.—This mine has been bonded by Chase Brothers. Ten stamps are being erected. A water-power plant will operate the hoist and mill.

CALAVERAS COUNTY.

(From Our Special Correspondent.)

EL ENCINO.—At this drift mine in Chile Gulch, four miles south of Mokelumne Hill, the body of water struck a few weeks ago is still flowing strongly out of the drain tunnel, and in too great a volume to be controlled by pumping. As the pay gravel lies several feet below the level of the drain tunnel, the mill cannot be operated until the mine is drained down to that level. Superintendent J. A. Regan thinks he will have the mill in operation inside of 30 days. At the last meeting of the directors an assessment of 2c. per share was levied to meet the expenses of the company.

ROYAL CONSOLIDATED MINING COMPANY.—This company, which owns a group of mines in Salt Spring Valley, two and a half miles northwest of Copperopolis is reported to have purchased the Womble Ranch and mines which consist of three locations of 4,000 ft. adjoining the mill and to have sold them to a syndicate. The ore mills about $10 per ton.

INYO COUNTY.

(From Our Special Correspondent.)

AMARGOSA.—This mine, in the lower Panamint Mountains, has been worked since 1850. The first quartz mill in Southern California was put on this property, the freight costing 25c. per pound. The mine is now being reopened by Los Angeles parties, who, it is reported, have struck a 6-ft. vein of ore which assays $115 per ton. Just north of this mine is the Confidence, which is being operated by Salt Lake parties.

APIARY.—At this mine, near the town of Big Pine, a new tunnel is being run to cut the vein about 100 ft. below the old workings. They expect to go in 150 ft. before the vein is struck. All work is being done by pick, no blasting being required.

PRATT GOLD MINING COMPANY.—The property of this company, located at Big Pine, comprises four claims—three gold and one copper. The Good Luck is being worked through an 80-ft. tunnel. The ledge is 12 ft. of low-grade ore carrying sulphurets, and can be traced for 800 ft. The Lone Star has a shaft down 30 ft., and the vein has been prospected by two tunnels, one in 30 ft. and the other 17 ft. The copper property, which is being worked by an incline, has ceased operations on account of the snow. Work will begin again about March 1st.

NEVADA COUNTY.

FEDERAL LOAN MINING COMPANY.—This company, of Grass Valley, has elected the following directors: John Vincent, A. M. Allen, Mrs. A. R. Allen, E. J. Naffziger and J. G. O'Neill. John Vincent is president and J. G. O'Neill secretary.

(From Our Special Correspondent.)

GOLD HILL.—At this mine at Nevada City, sinking has commenced and the mill is kept running most of the time although the vein is rather small. Thirty men are employed besides the tributers.

ROCKEY BAR.—At this drift mine one-half mile east of Washington the gravel is running very rich. The specimens are rough free gold, not washed or worn much, some being valued as high as $35 and a great many of them over $10 each.

ROCKLAND GOLD MINING COMPANY.—This company has completed its hoisting and pumping plant on the Kentuck & Alpha ground at Grass Valley, and is now taking the water out of the 300-ft. shaft and stopes. All reports of this mine, which was shut down many years ago, confirm the opinion that it will be a good one when developed. The property is on a parallel vein 1,000 ft. distant from the famous Idaho, which has produced $26,000,000.

SHASTA COUNTY.

(From Our Special Correspondent.)

DEAKIN & TAYLOR.—This property, located 5 miles west of Redding, comprises several claims known as the Enright, South Spanish and Taylor. Capt. Thomas T. Taylor, the manager, has put the shaft down 135 ft., and has been obliged to discontinue operations on account of his inability to handle the water with the present plant. A larger plant will soon be installed, and a 10-stamp mill erected. Down to the 80-ft. level the ledge averaged $10 per ton; the ledge is 4 ft. wide from that down to the 135-ft. level and averages $20 per ton.

LONE ROCK.—This mine, on Riley Bar, near the Sacramento River, is being opened up. The shaft is down about 65 ft. on a 16-in. ledge, which assays about $40 per ton. The ore is shipped to Keswick for treatment.

TEXAS CONSOLIDATED.—At this mine, located at Dry Diggings, the electric plant which was recently installed under the supervision of Almarin B. Paul is now in operation, furnishing motive power for hoisting, pumping and milling. The shaft is now down 1,100 ft.

COLORADO.

CLEAR CREEK COUNTY.

(From Our Special Correspondent.)

CROWN POINT-VIRGINIA MINING COMPANY.—Several judgments have been obtained on this property, at Idaho Springs, in sums ranging up to $10,000, all by default. It is generally understood that the Eastern owners adopted this plan to freeze out some of its stockholders, who are not willing to contribute on the original purchase.

DICTATOR.—This is one of the recently reopened silver mines at Georgetown in which new ore bodies have been found; a small streak from which 113 lbs. was sold returned $115. There is 2 ft. of $100 ore aside from the rich streak.

JOE REYNOLDS.—This mine, at Lawson, which is owned by the heirs of "Diamond" Joe Reynolds, is worked by the agent, who has recently opened up 2 ft. of $200 silver ore in the level at 800 ft.

LAKE.—After an idleness of several years this mine, at Idaho Springs, has been started up, and because of the low treatment charges and better milling facilities, about 3 ft. of low grade ore has been made to pay a net profit which a few years ago was a dead loss.

PELICAN DIVES MINING COMPANY.—Preparations are under way for the resumption of the sinking of the Pelican shaft at Silver Plume, which is now 140 ft. below the level of the Diamond tunnel in 2,760 ft. It is in a large body of low-grade silver ore which some think will change to smelting as greater depth is gained. The Bismarck lode of this group is showing smelting ore in several places.

RAILROAD TUNNEL.—A big scheme has been sprung in the Colorado Legislature for the driving of a railroad tunnel through the Continental Divide from a point near Georgetown. It will have the same objects as the old Brick Pomeroy—the A. & P. tunnel—for both railroad and mining purposes. Senator Gallagher, of this county, has just introduced a bill for driving a tunnel of from five to six miles length, the work to be done by the State and by convict labor from the State Penitentiary. The entire western part of the State would be opened up by such a proposition and for the mining districts a new source of supply of timber and coal would be obtained. While it is doubtful if the proposition receives much attention from the legis-

lature, it is the beginning of a movement which has the backing of the Denver Chamber of Commerce.

EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

(From Our Special Correspondent.)

CARDINAL.—This claim, on the southwest slope of Gold Hill, is under lease to Messrs. Day, Neville & Company, and has made a first shipment from a shaft 150 ft., on which a steam hoist has been erected. The rock is granite and the ore low grade as a rule.

DASHWOOD.—This property, on Beacon Hill, shipped eight tons of smelting ore and 10 tons of low grade ore in one week. The smelting ore was estimated to sample $1,000 per ton. The owner, Dr. Lanterman, estimated one sack at $5 per pound. The seam continues in length and value. No further sinking below 25 ft. has been done on the vein. Prospectors are plentiful in the immediate neighborhood of the Dashwood in search of extensions.

ELKTON CONSOLIDATED.—This mine, on Raven Hill, continues its usual monthly output of $75,000 gross tons. The 4th level has been extended north from the Elkton shaft 45 ft., and the ore chute was encountered at 35 ft. The 3d level has been driven into the Walker ground 510 ft., but no stoping has been done. The 2d level has been extended north into the Walker ground 620 ft., but is not being driven at present; but a raise is being made between the 1st and 2d levels for ventilation and to afford further facilities for stoping.

FREE COINAGE.—The Pinto Lease, on Bull Hill, is being worked by Messrs. Reed, Wilcoxon & Company on lease, who give employment to 12 men. The shaft has been sunk 150 ft., and work is confined to the 50 and 100-ft. levels. Ore is being extracted from two veins at the 100-ft. level, one from a soft vein, which carries telluride and fluorite. The pay streak is about 12 in. wide, the chute of ore about 50 ft. in length, and of an average grade of $60; a winze is being sunk on this chute. The Pharmacist vein is also being worked on this level, and has shown great improvement lately. The vein is about 4 ft. wide, of an average grade of $40. At the 50-ft. level a drift has been extended on the soft vein 100 ft. in hopes of intersecting a cross vein which has yielded considerable mineral in adjoining claims.

GOOD WILL TUNNEL COMPANY.—The tunnel has pierced Gold Hill 350 ft. The rate of progress is about 10 ft. a day, with machines in hard granite; size of tunnel is 7 × 8 ft. in the clear. Since November 20th, the day the machinery was ordered, a compressor has been fixed, good substantial houses erected for blacksmith shop, changing house, thawing powder, storing coal and a magazine for the storing of 20 tons of powder in the space of two months.

ISABELLA.—At the annual meeting of the stockholders recently, it was shown that the gross value of the ore shipped for the year 1896 was $568,040, an increase over 1895 of $205,820, and the profit made was $220,114, and the dividends declared were $180,000. At the meeting the minority stockholders wanted a representative on the Board of Directors, and nominated Mr. P. E. C. Burke, a well-known mining man of Cripple Creek and Aspen, who received 306,425 shares, which under the "cumulative" system of voting gave him a majority. The legislature that met in Denver in 1895 so amended one of the statutes relating to corporations as to make the cumulative system operative. Mr. Burke has not yet taken his seat, and the minority stockholders talk of appealing from the decision of the majority.

MILLS.—The El Paso Company, at present operating a chlorination mill at Gillette, of 50 tons capacity, has commenced excavating for a 100-ton plant at Florence, for the treatment of Cripple Creek ores, as labor, fuel, etc., is cheaper at that point. Mr. Turner expects to start the erection of a 50-ton cyanide plant at Elkton about February 1st; the water pumped from the Elkton mine is to be utilized. The Page Reduction Works at Florence, being built with English capital, is progressing rather slowly toward completion. The method to be adopted is a modification of cyanide. The sampling works are nearly finished. The Hartzell mill at Anaconda has started to work under new management after a shut-down of several months, and is treating the dump from the Rubie mine on Bull Hill. The Lucky Guss Mining Company is erecting two Rincaid mills, and has made arrangements with the Gold Ore Reduction Company to furnish power from its sampling works erected at Goldfield; these mills are for the treatment of low-grade ores. The Gold Geyser mill, close to the town of Cripple Creek, will soon be equipped with an electrical appliance to save the gold. Mr. Ford, the electrician, has given years of study and attention to the saving of gold by electricity and his models of dolly tubs, etc., seem to answer their purpose.

Messrs. C. J. Moore, W. M. Fuller and F. A. Malins have formed a partnership known as the Beaver Park Milling Company, and are operating the Beaver Park Mill, the cost of amalgamating and concentrating being $4 a ton. It looks as if mine-owners will have the best of the deal after awhile as with so many new mills being erected, the prospect of an increased treatment charge is not bright.

LAKE COUNTY.

(From Our Special Correspondent.)

LEADVILLE STRIKE SITUATION.—There is but little new this week. As far as the strike is concerned, there has been no move and, as already stated in the *Journal*, the mine managers having done even more than should have been expected of them—which resulted in a failure—cannot be expected to make any more advances. At present, a committee from the State Legislature is here on an investigation, but really it cannot be seen how that will settle the strike. From what I can learn we are soon to lose the soldiers. The main officers were ordered home to-day and there are but few troops now here.

As to the pumping proposition, there has been no move publicly made and at the present time the water which has for so many years been handled by the Maid pumps is rushing through the Carbonate hill territory at will.

CORONADO.—It has been currently reported that this mine is to be started. Manager Estey is not in the city, and others here in Leadville connected with the property do not know anything of such action. The report may have started for the reason that the Union Leasing Company has been removing some of its machinery during the week from the El Paso ground, while the big hoister at the Jamie Lee has been taken to the Coronado property.

ELK.—Harris, Thomas and others, as lessees, started up the Elk property about 10 days ago. This property a few years ago was very productive, but has been idle for some time. This week the new lessees who are operating at the 250-ft. level opened up an immense body of iron ore. The iron runs 50% excess and carries from 6 oz. to 8 oz. silver. Shipments will be commenced next week.

KANSAS CITY SMELTING AND REFINING COMPANY.—The Arkansas Valley smelter at Leadville, the property of this company, has a large force of men at work erecting the new roaster. Its size can be judged from the fact that the building to enclose this mechanical roaster is over 200 ft. in length.

M. E. C.—This property, lying near the Elk, is to be vigorously developed. The old shaft is being cleaned out and work of drifting on the contact will be under way in a few days. The M. E. C. is a portion of the old Searle placer and the shaft is down 265 ft. Recent development work in adjoining ground leads to the belief that the placer property territory is richly mineralized, and it may be that the Wolcott contact may soon be opened up in this property.

MODOC.—This is an old property lying on the crest of Corbonate Hill and was recently leased to Dr. Heron, of Leadville. The old shaft is down over 600 ft. but the principal work is being carried on by the new lessees at the 550-ft. level where the contact was encountered.

MOLINE MINING COMPANY.—These people are pushing development work on the William Wallace shaft. At a depth of 900 ft. they have started a drift and are now engaged in doing exploration work with a diamond drill. As previously announced, the company has ordered a mammoth pumping plant to handle the immense flow of water which they are sure to have by the closing down of the Maid pumps.

WESTON PASS SECTION.—I think that it will not be many days before I can chronicle very encouraging reports from this section of Lake County. During the past six months a great deal of ground has been secured by local people, and some important work has been carried on. There is every reason for believing that the Weston Pass section will be one of the most important in this camp in the near future.

LA PLATA COUNTY.

RED JACKET.—George Adams and J. W. Butler have bought this lode from E. T. Peeples & Sons, which gives them 1,000 ft. on one vein, as they already own the Pearl of Pekin, a full claim, and the Mountain Rose, a 1,000-ft. fraction. It is their intention to work these claims all winter.

SAN MIGUEL COUNTY.

BRADLEY PIONEER MINING COMPANY.—This company recently held its annual meeting, at which the following directors were chosen for the ensuing year: Charles Wheeler, F. M. English, J. H. Hammond, O. B. Crum, F. A. Walters, S. W. Tyler and C. W. Walters.

TOM BOY MINING COMPANY.—The sale of a controlling interest in this company to the Exploration Company of London was noted in our "Late News" last week. The purchasers have elected new officers as follows: President, James D. Hague; vice-president, William L. Bull; directors, William Bayly, Henry Bratnober, Anson Maltby, F. L. Underwood and Frederic Van Lennop. Mr. Hague takes the place, as president, of William Bayly. The price paid for 57% of the stock is reported to be $765,000, which is on the basis of $1,500,000 for the entire property. The stock under option was deposited with the Metropolitan Trust Company of New York. It is understood that some changes will be made in the organization of the company, which is a corporation formed under the laws of West Virginia. The capital will probably be increased to $2,000,000 to cover new developments, mill improvements and additions to the property.

GEORGIA.

GEORGIA MINING, MANUFACTURING AND INVESTMENT COMPANY.—In the Superior Court at Atlanta a decree has been entered by consent of all parties in the case, providing that the property of this company shall be sold at public sale within 90 days. The exact date of sale will be fixed later. It is understood that arrangements have been made for the purchase of the property and a reorganization of the company on a substantial basis. The property of the company in Bartow and other counties in North Georgia has been in the hands of Julius L. Brown, as receiver, for about two years. This corporation controlled, principally through ownership of stock, the Dade Coal Company, the Walker Iron and Coal Company, the Georgia Iron and Coal Company, the Chattanooga Iron Company, the Bartow Iron and Manganese Company and the Castle Rock Coal Company, of Georgia. It also leased the Rising Fawn Furnace, and at one time operated Chattanooga Furnace also.

IDAHO.

OWYHEE COUNTY.

MORNING STAR.—Miners have been put on this property at Silver City, as the mine is now clear of water. The shaft will be sunk to greater depth at once, and the north drift of the fourth level extended. A new 1,000-ft. cable for the hoist is on the ground.

SHOSHONE COUNTY.

GOLDEN GATE MINING COMPANY.—This company has purchased the Agnostic group of mines, located eight miles east of Pierce City, on French Creek, and are preparing to develop the mines in the early spring. This property consists of 4,500 ft. of a 3-ft. ledge of free-milling gold quartz ore.

KANSAS.

TAX ON OIL AND GAS WELLS.—A bill was favorably considered in the Lower House of the Legislature on January 30th, which is of great importance to oil companies. The bill provides for taxing the output of all oil and gas wells in the state. The Standard Oil Company is now developing a very rich field in Southern Kansas, and if this measure becomes a law it will add thousands of dollars to the general revenue.

MARYLAND.

ALLEGANY COUNTY.

GEORGE'S CREEK COAL AND IRON COMPANY.—At the annual meeting of this company last week at Baltimore the directors re-elected Mr. J. J. Alexander president and Mr. Wm. A. Cooper secretary and treasurer. The members of the board are Messrs. John S. Gittings, John A. Whitridge, J. J. Alexander, Francis White, Thomas Deford, George C. Jenkins, Samuel P. Townsend, E. Austin Jenkins and Wm. H. Whitridge.

MICHIGAN.

COPPER.

ATLANTIC MINING COMPANY.—This company's output in January was 264 tons copper, against 307 tons in December and 257 tons in January, 1896.

NORTH TAMARACK.—This mine, near Houghton, was discovered to be on fire on February 2d, with five miners cut off from escape. The fire started at the ninth level of No. 3 shaft, and efforts are being made to prevent its spreading into No. 3 shaft, Tamarack. It is scarcely possible that the five imprisoned miners can survive.

WOLVERINE MINING COMPANY.—This company reports a production of 106 tons copper in January, against 106 tons in December and 101 tons in January of last year.

MINNESOTA.

(From Our Special Correspondent.)

Bills have been introduced into the State Legislature looking to the rebate of the royalty on ore mined from State lands which is smelted in the State. As the only ore now mined on State land comes from the Rockefeller mine, subleased by the Oliver Mining Company, there is no likelihood of the bill becoming a law. There is a very strong feeling in the legislature against the Rockefeller interests for some reason.

Efforts are being made by Duluth interests to force a reduction by the State of passenger and freight rates from that city to and from the iron ranges, which are now higher than rates elsewhere.

IRON—MESABI RANGE.

(From Our Special Correspondent.)

ARCTURUS MINING COMPANY.—This company, from its development at the very west end of the known ore bodies of the range, has some assays running 60% and over in iron, and 0·40% and under in phosphorus. The company is arranging to get in a track from the Duluth and Winnipeg Railroad, and will put down some working tunnels. A large body of ore has been shown and of general excellent quality.

COMMODORE MINING COMPANY.—This company has let a contract for 2,500 cords of hard wood for fuel and many thousand feet of timber for lagging, ties for underground roads, and mining timber, indicating its intention of mining on a large scale. It is now running with only about 100 men. It is opening and developing the lower levels in anticipation of extensive work.

LAKE SUPERIOR IRON COMPANY.—This company, at its three Hibbing mines, is working 350 men, and ore is being hoisted from three shafts at the Hull and from one each at the Rust and Burt. At the Hull and Rust about 3,000 gals. of water are raised per

minute, and at the Burt considerably more. No trouble is now experienced from water, and it is thought the new pumps will keep them all permanently dry. The mines have had great trouble since they were opened.

PAYNE & MYERS LANDS.—On these lands, lying about 5 miles northeast of Hibbing, 8 holes have been drilled by diamond drills, and ore encountered at a depth of 85 ft. It is of good quality, and explorations will continue there.

PETTIT & ROBINSON LANDS.—These lands, adjoining the McKinley mine of the Lake Superior Consolidated, will be opened at once. Already there is much activity in diamond-drill work, and the mine will be developed.

ROUCHELEAU IRON MINE.—Negotiations have been concluded for opening this property, adjoining the Canton mine at Biwabik, and work begins next week. Considerable ore will be shipped this year, if possible, and the southerly shaft of the Canton may be used. An Eastern furnace company is interested in the mine and will open it in company with the fee-holders. There is a large body of excellent ore on the lands, covered so deep that underground mining must be the rule.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The cold wave that came on January 24th held the temperature below freezing point until the following Saturday. It was too cold for hand-jig cleaning, and many of the steam plants were shut down. The sales of zinc ore were 17 carloads less than the preceding week, but only 4 less than the corresponding week last year. The surplus ore was sold and only about 700 tons left on hand, which is the smallest surplus for several months. The lead sales were 12 cars less than the preceding week, a very large decrease for lead ore in that time, and 13 cars less than the same period in 1896 The highest price paid for zinc ore was $21 per ton, at which figure about half of the Joplin shipment was made. Half a dozen carloads at Webb City and Carterville were sold for the same price. Considerable ore sold at $19.50 down to $17 per ton at Webb City and as low as $14 to $15 at Galena, Kan. The highest price paid during the corresponding week in 1896 was $24 per ton. Lead ore brought the same as for several weeks, $15.50 in the bin and $16 per 1,000 lbs. delivered. Last year lead was $16.50 delivered. Following are the sales for zinc and lead ores for the week ending January 30th, 1897: Joplin zinc, 524,970 lbs.; lead, 100,550 lbs.; value, $7,859. Carterville zinc, 673,110 lbs.; lead, 63,130 lbs.; value, $7,404. Webb City zinc, 1,046,000 lbs.; lead, 28,400 lbs.; value, $10,391. Galena, Kan., zinc, 2,410,000 lbs.; lead, 409,910 lbs.; value, $25,429. Aurora zinc, 405,000 lbs.; lead, 20,000 lbs.; value, $2,830. Oronogo zinc, 41,240 lbs.; lead, 310 lbs.; value, $438. Granby zinc, 84,500 lbs.; value, $634. District totals for last week: Zinc, 5,184,820 lbs.; lead, 622,300 lbs.; value, 54,985. District totals for four weeks: Zinc, 22,161,860 lbs.; lead, 3,867,970 lbs.; value, $200,892.

BALDRIDGE & HUBBARD.—D. H. Baldridge, of Chicago, Ill., is interested with S. E. Hubbard, of Joplin, in a lease of 22 town lots in the North Heights addition. They have sunk an old shaft 10 ft. that was put down to 80 ft. 15 years ago, and began drifting on a body of ore known to be a short distance from the shaft. Another shaft on the lease is 110 ft. deep, and in it is a 15-ft. face of zinc ore. In two other shafts there is good lead dirt at 40 ft. and 50 ft.

MCKINLEY MINING COMPANY.—This company holds a lease on 40 acres of land southeast of Webb City, owned by Thomas Connor, of Joplin. At Shaft No. 2, where a cave-in occurred, they had been drifting at 135 ft. on a 40-ft. face of zinc ore. Recently a fall broke through to the surface, and the steam hoister from No. 2 shaft and the boiler of the Spot Cash Company went into the opening, but have been recovered. These mines have been turning in about two carloads of zinc ore and 25,000 lbs. of lead ore each week.

SOUTH JOPLIN LEAD AND ZINC COMPANY.—The fire in this company's mine has been prevented from spreading into the present workings. The old timbers have all fallen, but are still burning.

In one place large chunks of ore have fallen from the roof accompanied by a quantity of rich dirt. If the prospect holds out as it now shows up, this discovery may more than pay the company for the damage done. The fire has not affected continuous mining, as operations are being carried on in other parts of the ground. The burning drifts had not been worked for some time. This mine has been a steady producer for about seven years.

STATE LINE MINING COMPANY.—This company has a 5-acre lease on the Ferguson land, six miles west of Joplin near the State Line. This lease is on the south side of the Bunco Mining Company's lease. A shaft is down 60 ft. in which lead ore was struck at 40 ft. and zinc ore is coming in the bottom of the shaft. There is not much water.

ZENITH MINING COMPANY.—This company is operating a lease of 60 acres of the Bolen land at Spring City. The company is composed of Messrs. Bolen, Miller and Hill, of Kansas City, Mo., and Monroe Welton, of Joplin. They have moved the Zenith steam jig plant from the Armil land near Joplin and started to work it. They are working at 130 ft. widening out a drift to cut to the face of zinc ore that was developed by another company.

MONTANA.

DEER LODGE COUNTY.

GRAY CABLE.—It is reported that William Maynard has tunneled in 50 ft. on this mine, on Warm Springs Creek, near Cable, and has struck a rich-looking vein of ore 6 ft. in width.

GRANITE COUNTY.

HOPE MINING COMPANY OF ST. LOUIS.—This company has declared a dividend of 10c. per share, paid on February 1st. The amount is $10,000, making the total sum paid in dividends up to date $662,252.

JEFFERSON COUNTY.

(From Our Special Correspondent.)

COMET & RUMLEY.—At these mines the 100-ton concentrator is kept busy treating ore produced by lessees from the company's mines. About 60 men are employed in and around the mines. Some carbonate is produced, which is shipped along with the concentrates to the East Helena smelter.

EVA MAY.—The concentrator is in operation again after three months' idleness, during which a large amount of development work was done at the mine. About 60 men are employed, and it is expected that this number will be continued in the future.

MADISON COUNTY.

KATIE.—A strike has been made in this mine, in the Silver Star District. The tunnel, now in 60 ft., is in ore that is said to run about $28 in gold and 2 oz. of silver.

MEAGHER COUNTY.

GREAT EASTERN.—This mine, at Castle, has been leased to a number of miners for 15 months, the lessees paying a royalty of 15%.

MISSOULA COUNTY.

RICHLI RANCH.—Drilling for coal on this ranch is being prosecuted with a diamond drill under the supervision of H. Cottle, a mining expert. Whether any discovery has been made is not known. They are down 300 ft. and will drill to a depth of 1,000 or 1,500 ft. unless a large body of coal or oil is reached sooner.

SILVER BOW COUNTY.

(From Our Special Correspondent).

BLUE BIRD MINING COMPANY.—This company is applying for patents on several of their unpatented claims, and selling its hoisting machinery, mill, etc. The hoist was purchased by the Anaconda Copper Company and has been in operation for some months at the Diamond shaft.

BONANZA.—This mine is again working after being idle for two years. In the past it has produced large quantities of high-grade silver-gold ore, some of which was worth over $600 per ton. It is operated under lease and bond by Wm. Wilson & Company, who, it is said, have discovered another ore chute.

BOSTON AND MONTANA GOLD, SILVER AND COPPER MINING COMPANY.—At the Atlantic mine, sinking to the 800-ft. level is in progress. At the Leonard shaft the working force is increased, and the amount of ore hoisted shows a corresponding increase, amounting at present to 400-450 tons daily. At the West Colusa only a few men are employed and nothing but first-class ore is hoisted through this shaft. The old machinery is being used for this, as the new machinery will not be completed for three weeks.

BUTTE & BOSTON MINING COMPANY.—At the Receiver's sale in foreclosure at Butte on February 1st, the mining claims of this company were purchased by E. Rollins Morse, of Boston, chairman of the reorganization committee, together with mills, smelters, water rights, etc., for $1,050,000 cash, the purchasers assuming all the liens and claims against the company, aggregating about $2,500,000. There were no other bidders, and the United States Court will be asked at once to confirm the sale.

MONTANA ORE PURCHASING COMPANY.—Work has been suspended at the 800-ft. level at the Glengarry for the present. The pumps have been hoisted to the 400-ft. level, where the water will be allowed to rise. About 150 tons of ore are hoisted daily, partly by lessees. At the Barus the output is curtailed and number of employees reduced, owing, it is said, to an abundant supply of customers to keep the smelter going.

NEVADA.

ELKO COUNTY.

GOLD CREEK MINING COMPANY.—This company, north of Elko, is engaged in a large gravel enterprise. They have 5,000 acres of land and claim that a large part of it will yield 60c. per cubic yard. From the large reservoirs they are building there will be a fall to a central ditch sufficient for 1,000 H. P.

STOREY COUNTY.

Considerable prospecting seems to have been done around the Comstock lode during the past year, judging from the number of new mining locations recorded there. Many of them are in the American Flat and Gold Hill mining districts.

STOREY COUNTY—COMSTOCK LODE.

CONSOLIDATED CALIFORNIA & VIRGINIA MINING COMPANY.—The latest official report of the superintendent notes a new strike of rich ore on the 1,550-ft. level, and states that the ore was found in a south drift from a west crosscut from the openings on the 26th floor of the stopes above the 1,750-ft. level, and that the ore is 15 in. wide on the west side of the drift and 18 in. wide on the east side. Samples taken across the face assayed $72.05, $74.50 and $381.40 per ton. Along the east side of the south drift 5 ft. north from its face there is a width of 18 in. of ore assaying over $200 per ton. They have extracted from this streak about 3 tons of ore assaying on an average $217 per ton, which ore still remains in the drift. Work has been suspended at this point, as they cannot remove the ore until an upraise from the 1,650 ft. level is connected with the south drift. It will take four weeks to make the connection. As officially described, this is the most important development of ore in this company's ground for several years.

NEW MEXICO.

COLFAX COUNTY.

GOLDEN AJAX MINING COMPANY.—In this property near Elizabethtown, it is reported, a 4-ft. streak of gold ore has been struck that gives very good assay values.

SANTA FE COUNTY.

CERRILLOS SMELTER.—A smelter will be built near Cerrillos, the railroad point nearest to the Golden District, and the preliminary work has already commenced. Three large smelters are now in operation in this territory, and two more are being constructed.

TAOS COUNTY.

MIDNIGHT GOLD MINING COMPANY.—The mines of this company are at La Belle in the Sangre de Christo range, about 20 miles south of the Colorado line. The following statements are taken from the report of Mr. A. E. Robinson, the chemist who was sent out to the mine by the company to ascertain the character and value of the ores: "The formation of the district is porphyry, and the dykes are of a cyanite and trachite character. The ore is silicious, carrying hematite and but little silver, practically all the value being in gold. It is entirely free from lead, zinc, nickel, and all metals that might interfere with its reduction. Several amalgamation tests show the ore to be 72·4% free milling, and also show it to be a good concentrating ore. Actual tests on lots of 100 lbs. show a saving of 99% of the assay value by the Pelatan-Clerici electro cyanide process and of 85% by MacArthur-Forrest cyanide process at a cost not to exceed $2.40 per ton. There are 976 tons of ore on the dump of an average value of $18.44 per ton. In drifting on the Margie M. vein the average of all the ore assayed was $20.22. The average of the dump samples, together with all the other samples assayed from the mine, inclusive of those taken from the crosscuts, which were dead work, was $34 45. The main workings are on the Midnight claim, and consist of a 65-ft. vertical shaft, a 115-ft. inclined shaft following the dip of the vein, 122 ft. of drifting on the veins and 161 ft. of crosscutting. Two main veins, the Margie M. and the Midnight, intersect each other, and are 5 ft. wide at that point. From the point of intersection the Margie M. has been drifted on 80 ft. south, and all the workings are in ore."

NEW YORK.

CATTARAUGUS COUNTY.

OIL LANDS LITIGATION.—A legal battle has been begun in the courts over the ownership of the oil rights of the Seneca Indian Reservation, a tract of over 60,000 acres of land lying along the Allegany River. This land at the present time is supposed to be prolific in petroleum oil, and the right to mine this oil is valued at $1,125,000 or more. Some months ago what is known as the Chipmunk region was developed. This territory is contiguous to the reservation lands. A company under the title of the Seneca Oil Company drilled a well near Vandalia, which proved a good producer. This well is upon Indian lands. The Seneca Company was formed about three years ago by Congressman Warren B. Hooker, of Fredonia, who secured from the Seneca Nation the oil right of the entire reservation. Later this lease was ratified by Congress. This grant stipulated that one well should be drilled each year, but as no drilling has as yet been done it is claimed that the lease is forfeited. About two months ago the Indian "Council" was convened, and it was at last decided to give the lease to the Seneca Oil Company, which is composed of Salamanca and Buffalo capitalists. The company then went ahead and put down the well mentioned.

It is held by the Ogden Company that the Seneca Indians have a perfect right to occupy and cultivate the land, but that this right does not include ownership of the oil or the minerals, or the power to lease the land for mining purposes.

Another claimant has now appeared in a company styled Shongo & Company. Shongo has a lease of a large portion of the reservation, given several years ago, and which he believes to be valid. His company built a rig near the well put down by the Seneca Company, and they were about ready to commence drilling when men acting under the direction of the Seneca Nation of Indians appeared on the scene and leveled Shongo's rig to the ground. In the meantime the Seneca Oil Company commenced action against Shongo & Company for trespass.

While these two companies are struggling for supremacy, a third claimant steps in and declares that the oil right cannot be leased by the Indians. This claimant is the Ogden Land Company. This company's claim is based upon the following asserted chain of titles: The fee to the lands within this reservation on the British seizure of this country rested in the Crown of Great Britain. Subject to the Indian right of occupancy, the Crown had the right to grant this fee. King James I., exercising this right, granted this fee to "The Plymouth Company." In 1692 this company was incorporated with the colony of Massachusetts, and the fee therefore vested in that colony. In the compact between Massachusetts and New York, this fee and the right of pre-emption were recognized. Congress ratified this compact and Massachusetts conveyed the fee to Robert Morris. Morris mortgaged the land to the Holland Land Company, which, by foreclosure, in 1793, became the owner of the fee. In 1810 the Holland Land Company conveyed the fee to David A. Ogden, and he sold it in shares to the Ogden Land Company. That title is now held by Charles E. Appleby of New York as trustee.

This claim of the Ogden Land Company to hold the unquestioned title of the land, subject only to the right of occupancy by the Indians, has been the subject of much discussion and of Congressional inquiry. There is little doubt that this title will stand, for in the case of the Tonawanda Reservation, under similar conditions, the government extinguished the claim by purchase. A few years ago the Ogden claim to the Allegany Reservation could have been purchased for $200,000, but to-day the trustee of the Ogden Company probably would not consider three times that sum as an inducement for the heirs to sell.

PENNSYLVANIA.

NORTHAMPTON COUNTY.

BOWER SLATE AND PENCIL QUARRY COMPANY.—At the annual meeting, held in Allentown on January 9th, the following board of directors for the ensuing year was elected: Henry Solden, of New York, president; E. G. Ellis, of New York, vice-president; J. F. Johnston, of Brooklyn, secretary; R. A. Halliday, of Brooklyn, treasurer; C. D. W. Bower, George Bower, John N. Bower, directors.

SOUTH DAKOTA.

LAWRENCE COUNTY.

DOLPHIN.—It is reported that a 6-ft. vein of ore has been encountered on this claim, lying about three miles west of Ragged Top, which assays better than $100 to the ton.

UTAH.

GRAND COUNTY.

SOUTH PARK MINING COMPANY.—A Bennett amalgamator will start up on the gravel bars below Green River, on the placer deposits owned by this company. The amalgamator is a combination steam shovel, washer and gold collector, and its capacity is said to be greater than any other placer machine invented. The plant of this company along the Green River cost nearly $200,000.

JUAB COUNTY.

SOUTH WHEELER.—The development of this claim, an extension of the Wheeler and Rabbit's Foot groups, is to be begun. At present the shaft has been put down 75 ft., at which station an iron carbonate is found showing galena and a fair amount of silver. It is also the intention to commence the development of the Murray Hill group. The property is at Silver City.

STEMWINDER.—This group of claims, near Silver City, is now being developed under a contract that calls for the putting down of its shaft to a depth of 192 ft. The principal owners of the property, which consists of three claims to the west of the Shoebridge-Bonanza, are C. E. Hudson, W. H. Simmons, C. H. O'Brien and Dick Colburn.

SWANSEA.—It has been decided to enter the open market with the ores of this Silver City mine. The management has hitherto sent its output direct to the smelter under a contract, but has been unable to close a favorable one this season. The fate of the shipment will be watched with much interest by owners whose claims are productive of a similar class of ore, as there are several others—among them the Gemini—that have been disappointed in the effort to close contracts for the year's output, and the result of the Swansea shipment will largely determine the output at their properties until more favorable conditions arise.

PIUTE COUNTY.

ANTELOPE.—In this old mine, between Marysvale and Joe City, work is being pushed, and it is reported that in the lower workings a fine body of ore 5 ft. in width has been uncovered. The lessees are sinking the shaft to the 400-ft. level, when drifts will be run. The Antelope was at one time a heavy shipper of rich ore.

DALTON GOLD AND SILVER MINING COMPANY.—The annual meeting of this company, whose property is at Marysvale, was held recently. The directors and officers elected for the ensuing year are as follows: Frank D. Hobbs, president; D. C. Dart, vice-president; C. M Garrison, secretary; J. H. Lakin, treasurer; Harry Atkinson and O. R. Young.

SUMMIT COUNTY.

LUCKY BILL MINING COMPANY.—The directors on January 20th levied an assessment of 1½c. per share on the capital stock, payable at once and delinquent February 23d. The condition of the mine at Park City is pronounced encouraging. About 50 tons of first-class ore are on the dump awaiting shipment, which has been taken from the discovery recently made on the surface 405 ft. from the shaft. Work has been abandoned on this discovery, and drifting will be resumed from the 1,000-ft. level of the shaft, with the object of tapping the vein which was discovered on the surface.

TOOELE COUNTY.

MARION GOLD MINING COMPANY.—This company, says the Salt Lake *Herald*, has entered suit against the Geyser Mining Company, alleging that ever since September 12th, 1894, the plaintiff was the owner of and entitled to the possession of the Marion lode mining claim, situated in the Camp Floyd Mining District, and that there is a vein or lode of rock in place bearing gold and other metals, the top or apex of which on its course and strike is wholly included within and runs substantially parallel to the side lines of the Marion claim throughout its entire length, and crosses each of the end lines of said mining claim; that this plaintiff is the owner of all that portion of the said vein or lode throughout its entire depth, which lies between planes drawn downward vertically through the end of the Marion claim, extended in their own direction so as to cut such exterior part of said vein or lode. The plaintiff then alleges that the defendant entered upon the ground in question and extracted and removed 3,500 tons of ore therefrom, of the value of $30,000, for which amount judgment is prayed.

WASHINGTON.

OKANOGAN COUNTY.

HIGHLAND LIGHT.—This mine in the Okanogan District, is sinking a shaft to a depth of 300 ft. The ore body in the shaft is said to have a good value, and the vein is 3 ft. wide.

JESSIE MINING AND DEVELOPMENT COMPANY.—This company was formed recently in Tacoma with a capital of $300,000 divided into shares of $1 each. The property of the company is located on Mt. Chapaca, 4 miles from Loomis and about 8 miles south of the international boundary line. The officers and organizers of the company are: W. A. Berry, president; F. G. Reed, vice-president, and W. H. Reed, secretary and treasurer.

PIERCE COUNTY.

KENNETH SULPHUR BED.—A somewhat indefinite despatch reports the discovery of a deposit of sulphur by John Kenneth, of Orting, in the Cascade Mountains. An expedition has been sent out to examine the beds.

WISCONSIN.

IRON—GOGEBIC RANGE.

AURORA IRON MINING COMPANY.—At the annual meeting of this company, at Milwaukee, the following directors and officers were re-elected: Charles F. Rand, Fred. T. Gates, James C. Holgate and Charles W. Harkness, all of New York; Edwin H. Abbot, of Cambridge, Mass.; F. H. Severance, of Cleveland; W. J. Olcott, of Bessemer, Mich.; president, Charles F. Rand; secretary and general counsel, Howard Morris.

METROPOLITAN IRON AND LAND COMPANY.—At the annual meeting in Milwaukee, January 28th, the following were elected as directors: S. S. Curry, O. W. Potter, L. J. Petit, J. A. Whaling and H. S. Hazleton; president, S. S. Curry, Ironwood; treasurer, J. A. Whaling; secretary, H. S. Hazleton, Milwaukee.

WYOMING.

ALBANY COUNTY.

(From an Occasional Correspondent.)

CARBON COUNTY MINING COMPANY.—This company has its 10-stamp mill nearly completed, but the time for starting has not been set. The mill has been erected to handle quartz from the Albion that contains free gold and galena. The mill is provided with amalgamation plates and with sizers and Frue vanners to treat the tailings.

SMUGGLER MINING COMPANY.—This company was recently incorporated to work the Smuggler mine, an extension of the Albion. Mr. Gray, formerly secretary of the Carbon County Mining Company, has been elected secretary.

CARBON COUNTY.

(From an Occasional Correspondent.)

BATTLE LAKE.—From these copper mines Mr. G. F. Done has shipped five cars of ore to the Denver smelters. This shipment closes the work for the season, but extensive development will follow as soon as the snow melts. The property is a long distance from the railroad, but the ore is rich enough to warrant mining.

GRAND ENCAMPMENT.—The newspaper excitement in this district continues and is at such a point that it will cause mining men to pass the camp by. The press is defeating the very object that it is attempting to gain. So far there has been discovered some very rich gold quartz in veins of more than ordinary size. Owing to the lateness of the strike the development is very slight, and on account of the heavy snows but little can be accomplished at this time of the year.

FOREIGN MINING NEWS.

AFRICA.

GOLD COAST.

WASSAU GOLD MINING COMPANY.—This company reports for November 501 tons of ore crushed, and for December 440 tons, the total yield from 941 tons being 1,703 oz. gold, an average of 1·81 oz. per ton.

BRITISH COLUMBIA.

TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

DERBY.—This claim is immediately below the Le Roi mine on the south side of Red Mountain. Development work, which is still in progress, consists of a shaft 50 ft. deep on a vein running from a trace to an inch in width. The nearness of this property to the Le Roi mine has encouraged the management to persevere in sinking.

LILY MAY.—Development work continues on this property. The shaft is now down about 47 ft. with a fair showing of ore. Seven men are at work in the shaft.

NICKEL PLATE.—Mr. Cunningham, the mine superintendent of this company, which is wholly a private corporation, says the shaft is down on the vein 190 ft. and sinking is being continued along this vein. Some very good ore has been mined on the property. About 300 tons of paying ore are on the dump awaiting shipment. Shipping facilities from this mine are furnished by the Red Mountain Railway, which is within a few feet of the company's property. The Nickel Plate is owned by Butte and Salt Lake parties, and it has no stock on the market, the owners having sufficient capital for development purposes, and for the proper management of the mine.

O. K.—The stamp mill on this mine is again in running order and small shipments of concentrates have recommenced.

WESTERN AUSTRALIA.

GOLD PRODUCTION.—The official report gives the total production of gold in the Colony for the year 1896 at 281,263 crude oz., showing an increase of 49,750 oz. over the year 1895. The report shows a large increase during the last quarter of the year. Estimating by the values given, the output in 1896 was equivalent to 251,730 fine ounces gold.

LATE NEWS.

D. J. SULLIVAN, superintendent of the Pioneer mine, was killed February 4th by the premature explosion of a blast in the mine near Colfax, Cal. He was about fifty-seven years old and had much experience in mining in California and Nevada.

ALASKA TREADWELL GOLD MINING COMPANY.—This company reports the clean-up for the month of January as follows: Period since last return, 31 days; bullion shipment, $58,722; ore milled, 20,235 tons; sulphurets treated, 423 tons. Of the bullion there came from sulphurets $22,602. The expenses for the month are not made up as yet. The gross return for the month showed an average of $2.90 per ton.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, Feb. 5.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending January 30th, 1897, compared with the corresponding period last year:

	1897. Week.	1897. Year.	1896. Year.
Pennsylvania Railroad.....	73,152	386,131	345,864

PRODUCTION OF BITUMINOUS COAL in tons of 2,000 lbs. for week ending January 30th, and for years from January 1st, 1897 and 1896:

Shipped East and North:	1897. Week.	1897. Year.	1896. Year.
Allegheny, Pa.....	42,546	167,289	233,103
Barclay, Pa.....	1,453	3,195	4,887
Beech Creek, Pa.....	95,148	282,738	319,191
Broad Top, Pa.....	8,252	33,215	45,063
Clearfield, Pa.....	69,122	497,018	519,023
Cumberland, Md.....	47,274	228,832	284,902
Kanawha, W. Va	‡82,399	238,697	.....
Phila. & Erie.....	5,243	13,013	5,963
Pocahontas Flat Top	.....	.....	266,452
Totals.....	351,539	1,464,027	1,678,584

‡ For week ending January 21st.

Shipped West:	1897. Week.	1897. Year.	1896. Year.
Monongahela, Pa.....	23,731	106,889	87,367
Pittsburg, Pa	39,762	177,796	190,014
Westmoreland, Pa.....	29,181	148,431	197,163
Totals.....	98,674	433,116	474,544
Grand totals	450,213	1,897,143	2,153,128

Production of coke on line of Pennsylvania Railroad for the week ending January 30th, 1897, and year from January 1st, 1897, in tons of 2,000 lbs.: Week, 87,970 tons; year, 361,233; to corresponding date in 1895, 465,568 tons.

Anthracite.

Matters in this market have become rather quiet, with an amount of business doing that is reported fair by most of the companies. Contrary to expectations, the retailers have not come into the market to any extent to replenish their stocks of coal, which were drawn upon quite heavily during the recent

cold weather. What purchases they are making are reported to be in unusually small lots. It is a gratifying fact for many of the producing interests that the quantity of coal which they delivered during January was considerably in excess of the amount mined, the difference required for delivery having of course been taken from the stocks on hand. It is believed the same thing can be done during February with the 2,500,000 tonnage, though it is freely admitted by some that a half million ton reduction, even of that amount, would be an advantage to all concerned. To this, however, two of the producing companies will not listen.

It is still the general report that the July circular of prices is being obtained, with better on certain special grades of coal. At the same time there is a current rumor, taking the form of a half-hearted complaint, that deliveries on orders at prices much below the July circular, taken before the recent stand was made to obtain these prices, form entirely too large a portion of the present business. Some of the companies seem to have no trouble in booking orders where others fail. The circular of prices now in effect is as follows: $3.75 for broken, $4 for egg and chestnut and $4.25 for stove.

NOTES OF THE WEEK.

The Delaware, Lackawanna & Western in 1896 earned $44,206,351 gross and $6,730,978 net. Interest and rentals required $5,406,239. Dividends paid, 7%, were $1,834,000, leaving a deficit of $509,261 for the year. The amount earned on the stock was 5·05%. The coal transported was 7,484,071 tons, an increase of 758,607 tons over 1895.

The Schuylkill Coal Exchange gives notice that the Philadelphia & Reading collieries drawn to return prices of coal sold in January, 1897, to determine the rate of wages to be paid, show an average price of $2.66, and the rate of wages to be paid for last half of January and the first half of February, 1897, is 5 % above the $2.50 basis.

The report of the Central Railroad Company of New Jersey for 1896 shows that the gross earnings for the year aggregated $13,117,350, as against $13,568,023 for the year 1895, a decrease of $450,673, which, together with an increase of $23,514 in the cost of operating, has resulted in a decrease in the net earnings of $474,187. The charges to capital account for the year amounted to $658,704, representing disbursements for construction of new railroad, siding and connections, and purchases of land, equipment, etc. The net result of the business of the year, including income from investments, after providing for the payment of 5% in dividends on the capital stock was a credit to profit and loss account of $271,415.

Bituminous.

In the soft coal market most of the producers hardly know just where they stand. Prices seem to be down to the lowest possible ebb on contracts for delivery after April 1st, but now come reports and rumors of these same prices for present delivery. The disorganization of the trade is such that one is unable to judge whether the end of cutting has been reached. A number of the well-known coals have simply stood aside and booked practically no orders, believing that there was trade enough for all, and that this craze would pass over. To be sure, what is considered as the cream of the trade has been partly contracted for, but there is still a proportion of this trade that has not been taken, which will be handled probably in a more business-like way to the advantage of both the producer and the consumer. It is stated in the trade that the Chesapeake & Ohio people have contracted for, say 1,200,000 tons, Baltimore & Ohio shippers 700,000 tons, Clearfield 500,000 tons, Pocahontas and Beech Creek smaller amounts, though these figures are in the nature of estimates, and of course cannot be proven. The total of these amounts, however, would still leave a considerable sum for future contracts, which is about the only hope of the trade for this season. The prices range from 25 to 50c. off last year's figures, according the to kind of coal.

The present shipments are small from all regions, and all consuming territories are taking only small mounts of coal. Even all-rail trade, which seems to have held its own better than the others, has dropped off considerably. Transportation from mines to tide is very bad, and boats loading are kept waiting the best part of a week in most cases for their cargoes. Cars are still in plentiful supply.

Most of the shipping harbors are blocked more or less with ice and regular and irregular tows cannot be calculated on for their arrival with any certainty. The coastwise vessel market is strong, most vessels asking the best price they think they may get, it being difficult to quote freights. We should say nominal freight rates from Philadelphia are, say, $1 to Boston and 85c. to Sound ports.

NOTES OF THE WEEK.

The Baltimore & Ohio, the Reading and the Western Maryland have combined to form a new route for bituminous coal shipments. Shippensburg, where Reading will get the coal, is on its Harrisburg & Pittsburg Division, and it secures a long haul on all coal destined to Philadelphia. The coal is to be carried to Port Richmond, where it will be loaded into barges or other vessels and then carried to points in New England.

The annual report of the Maryland Coal Company for the year ending December 31st, 1896, is as follows:

	1895.	1896.
Net earnings	$119,085	$118,995
Interest on bonds	5,040	4 700
Balance	$114,045	$114,295
Dividends	84,775	65,943
Surplus	$29,270	$48,352

The company has paid off during the past year $50,000 first mortgage bonds, leaving $17,000 still outstanding. The total shipments of coal during the year amounted to 359,624 tons, against 449,234 tons for the previous year.

At the annual meeting of the Huntingdon & Broad Top, held on February 2d at Philadelphia, Spencer M. Janney was re-elected president with the following board of directors: James Long, James Whitaker, Thomas R. Pattern, Jacob Naylor, William Bault, Samuel Bancroft, George H. Colket, Robert M. Crosier, William H. Shalleross, Lewis A. Reilly, Harrison K. Caner and Charles S. Farnum. The business of the past year, compared with 1895 and 1894, follows:

	1895.	1896.
Gross earn	$618,004	$583,362
Op. expen	295.983	284.150
Net	$352,021	$299,212

The total tonnage was 2,614,417, against 2,899,066 in 1895 and 2,391,276 in 1894. Coal tonnage was 2,196,636, as compared with 2,413,820 tons in 1895.

The special committee of the Ohio Coal Traffic Association on February 3d reached an agreement covering percentages of traffic. The committee is composed of Messrs N. Monserratt, of the Columbus, Hocking Valley & Toledo; Washington E. Conner, of the Wheeling & Lake Erie, and Stevenson Burke, of the Toledo & Ohio Central. Following is an official statement of the allotment of tonnage percentages to be recommended by the committee to the Executive Committee of the Association: Columbus, Hocking Valley & Toledo, 28·19%; Toledo & Ohio Central, 16·40%; Wheeling & Lake Erie, 13·44%; Cleveland, Lorain & Wheeling, 12·97%; Columbus, Sandusky & Hocking, 12%; Baltimore & Ohio, 10%; Walhonding Valley, 7%.

The chief contest has been over the allotment to the Columbus, Sandusky & Hocking and the allotment of 12%, as shown in the above table, is conditioned to the following extent: The road is to be given the right to carry 1¼% additional, or a total of 13¼%, provided it can do so by fair means.

Buffalo.

Feb. 4.

(From Our Special Correspondent.)

Seasonable weather has prevailed for several days over the United States, conducive to the interest of dealers in coal. Ice extends out on Lake Erie for many miles and Niagara River is covered, excepting a very narrow channel, nearly as far as the International Bridge at Black Rock, Pa.

Prices of anthracite and bituminous coal are nominally unchanged. Demand is generally fair.

A bill has been introduced in the Legislature at Albany imposing a penalty of $50 on proof that dealers have given short weight on coal delivered to customers.

The shipments of coal from Oswego, N. Y., for the season of 1896 amounted to 635,090 net tons, as compared with 484,599 net tons in 1895, an increase of 150,491 net tons.

Chicago.

Feb. 3.

(From Our Special Correspondent.)

Anthracite Coal.—Hard coal demand has slackened somewhat on account of milder weather. Since the advent of the very cold weather Saturday a week ago, a great deal of coal has been shipped, all rail. Ten days of continued cold weather was the means of creating a vigorous demand for hard coal. Out of town trade was very brisk, and orders, some as high as 30 cars were numerous. Prices stiffened last week, and still remained firm, and it is presumed that concessions will not be in order for a while. Circular prices are: Grate, $5.35; egg, stove and chestnut, $5.85.

Bituminous Coal.—Sales have slowed up somewhat since the cold weather abated. A great deal of soft coal was bought for heating purposes and the very cold weather drove the railroads into buying, as the engines consumed double fuel. Prices are much firmer. Manufacturing enterprises appear now better able to stock up. Inquiry is more active from such concerns and the outlook is certainly better than it has been for a number of months.

Pittsburg.

Feb. 4.

(From Our Special Correspondent.)

Coal.—Trade remains dull, the supply at all points exceeding the demand. The trade is in bad condition and gives little promise of improvement; many operators are anxious to do what is right in advancing wages to living prices, while others are doing everything possible to keep the mining rate at a minimum. The report is that the wage question of the Pittsburg district will settle down to a 54-cent rate for mining and will likely continue to work under it until the opening of the lake season. The miners, officials and the members of the district executive board admit that this is the only policy possible under the circumstances. The miners, in fact, will be instructed to make the best terms possible for the present, and with the exception of a few isolated cases where conditions are peculiarly favorable and the men are in position to take advantage of them this will mean 54c. The district is really at that basis now, and has been since the strike was broken along the Wheeling division of the Baltimore & Ohio while the convention of miners was in session at Columbus. The situation in the River district has not changed, although operations in the pools are much hampered by and ice may have to suspend operations. The miners are evidently preparing for a big strike.

Connellsville Coke.—The halting condition of the iron market is reflected in the Connellsville coke trade. Though there is plenty of faith in the future, proven by the continued fixing up of idle ovens, production and shipments show a slight decline. Demand is irregular; orders are booked for short periods and are often cancelled on short notice. These conditions have a marked effect upon prices. The Washington Coal and Coke Company, whose ovens are not strictly in the Connellsville coal seam, but are within a few miles of the outer point, and which is making a very good article of furnace coke, has placed an order for 150 cars per day in the Valley region. The price is not stated, but it is probably a shade under the Connellsville rate.

At Rookwood, Pa., the discovery of large veins of coal bids fair to develop into a great bituminous coalfield. A vein was opened recently by I. A. Phillips, at Phillippi, the output of which was analyzed by the State Metallurgist, who considered it 6.7% superior in coking facilities to Connellsville coal.

The shipment from the region for the week amounted to 5,942 cars against 6,266 cars the previous week, and were distributed as follows: To Pittsburg and run points, 2,400 cars; points west of Pittsburg, 2,675 cars; points east, 867 cars; total, 5,942 cars. The shipments amounted to 106,956 tons; a decline from previous week of 5,832 tons.

Shanghai, China.

Jan. 1.

(Special Report of Wheelock & Co.)

Coal.—There has been no change since last writing. All kinds of Japan coal are still scarce. A few sales of Tagawa took place at 3·30 taels per ton. Offers have been made for the most common kind of Imabuko at 3·40 taels, but without leading to business. Cardiff is steady at quotations, but nothing has transpired. Sydney Wollongong is without change, deliveries continuing on a very small scale. There have been no arrivals, but our market is still over-stocked.

We quote: Cardiff, 13 taels per ton; American anthracite, 9 taels per ton; Sydney Wollongong, 6·75 taels per ton. Japan coal is 5·75 taels for Takasima lump, 5 taels for Namazuta lump and 4·50@4·75 taels per ton for other sorts.

Kerosene Oil.—There has been a very large business, but confined entirely among the natives, Devoe's changing hands in big lots at various prices until 1·65 taels was reached. This may be considered the closing quotation, with a firm tendency. In Russian bulk sales have been made at 1·52½ taels, with buyers; there is no case oil in stock. Langkat has found purchasers at 1·60 taels, but there is little on the market. On December 29th an equivalent of 30,000 cases of bulk oil arrived, so that stocks now are 398,000 cases Devoe's, 110,000 cases Russian in bulk and 3,000 cases Langkat.

Quotations are as follows, per case: American Devoe's, 1·65 taels; Russian Batoum, 1·64 taels; Russian Batoum, bulk, 1·52½ taels; Langkat, 1·60 taels.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, Feb. 5. 1897

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Feb. 7, 1896. F'ces.	Tons.	Week ending Feb. 5, 1897. F'ces.	Tons.	From Jan., '96. Tons.	From Jan., '97. Tons.
Anthracite.	59	38,030	20	19,150	206,419	98,486
Coke	162	184,150	117	136,600	999,667	702 514
Charcoal	23	5,450	20	5,850	29,587	30,086
Totals	244	227,630	157	161,600	1,235,703	831,086

The markets generally are not in a very active or encouraging condition. While a considerable volume of trade is reported, prices are generally low, and there is in many quarters a pressure to sell that does not promise well for the future. Producers generally are holding back to see what arrangements are to be made about prices of Lake iron ore for the season. There is a general impression that the high rates of 1896 cannot be maintained and that a basis more nearly approaching the rates in 1895 will be adopted. Meantime there is some uncertainty and apprehension, as furnacemen believe that it will be impossible for them to go on with $4 Bessemer ores.

The Steel-Billet Pool at its meeting in Pittsburg, on Saturday, January 30th, after hearing the report of the special committee of three on the matter of reorganization, instructed the executive committee to return the earnest money, which was deposited when the association was formed, as guarantee that the depositing firm would observe the rules of the pool. The return of the guarantee fund practically ends the association. It was then decided that the committee act as a special committee to consider any plans that may be proposed to get the manufacturers together again.

New York. Feb. 5.

There has been no improvement in the local trade, and prices in consequence are unsteady.

The exportation of Southern pig iron is being actively pushed, and several thousand tons have been sold. In addition to the shipments to Europe we understand an order for 1,000 tons from Sydney, Australia, has been taken. Russia is also making inquiries for this class of iron, and only a few days ago a hundred tons of malleable iron was asked for. Recently there was taken an order for 4,000 tons of Southern pig iron to go to Antwerp. The inquiry for 900 tons which we reported as coming from Manchester, England, a short time ago has been refused as the requisite transportation could not then be secured.

We have learned from apparently good authority that much of the iron exported does not reach the consumer directly, but is taken by a jobbing house which places it on the market abroad. While there is some iron being disposed of in this way there are also some consumers abroad who buy the product at the mill here. Among the largest of such buyers is a firm in Holland which owns several furnaces on the European continent. English parties who are said to be interested in some furnaces in the South are credited with having bought 10,000 tons of pig iron.

The exportation of steel billets by the Carnegie Company and others continues. In the case of the Carnegie Company we understand the shipments are of surplus supply only. The market at home is showing how keen competition can be, and prices are now given as $15@$15.50 at mill, and it is likely that even these figures can be shaded.

Another pool has collapsed, the bolt trust, which controlled the manufacture of machine and carriage bolts and lag screws. This combination was organized shortly after the Nail Trust, and J. H. Parks, of Boston, was its commissioner, drawing a subsidy of 5c. a keg from the manufacturers on their entire output during the maintenance of the agreement. Since this trust has been "called," prices have fallen over 20%. Current quotations are uncertain, and it is hard to say what orders will be closed for.

Two fairly large contracts for cast-iron pipe for water works in Boston, Mass., have recently been closed. The first was for 2,935 tons pipe and 50 tons specials, and went to the Camden Iron Works, of Philadelphia, they having bid $52,748. The second contract, for 3,015 tons of pipe and 50 tons of specials, went to the McNeal Pipe and Foundry Company; the total being $53,768.

It is reported that a bid for 25 tons of boiler plates already punched, for shipment to Japan, has been made by a concern here.

There are several railroad projects in view which will call for bids in the spring. Bids are now being received by the Erie Railroad Company, we understand, for new rails for 15 miles of track on its Greenwood Lake division.

The town of Weldon, N. C., is to build a steel highway bridge across the Roanoke River to cost $60,000.

Pig Iron.—Locally business has been quiet this week, and prices as quoted below can doubtless be shaded. For Northern brands we quote: No. 1 foundry, $12@$13; No. 2 foundry, $12@$12.50; No. 2 plain, $11.25@$11.50; gray forge, $10.50@$11. For Southern iron we quote: No. 1 foundry, $11.50@$12; No. 2 foundry, $11@$11 25; No. 3 foundry, $10.50@$10.75; No. 1 soft, $11@$11.50; No. 2 soft, $10.50@$11; forge, $10 25@$11; basic pig, $11.50@$11.75. All prices are for tidewater delivery.

Cast-Iron Pipe.—Trade continues to be quiet, although several small orders have been placed. The average quotation at $20 per ton is unchanged.

Spiegeleisen and Ferro-Manganese.—Dealers on this side are unwilling to name prices, as they await advices from abroad. It is said quotations as reported are lower than those given on the other side. Ferro-manganese is quoted at $47 for imported 80%, New York. For 20% spiegeleisen $19@$19.50 per ton is quoted.

Steel Billets.—Since the collapse of this pool, billets are practically without fixed quotations. Competition continues, and we understand $15@$15.50 at mill are fair prices.

Merchant Iron and Steel.—Trade continues quiet with chiefly small sales. Prices are unchanged. For bars we quote: Common, 1·10@1·15c.; refined, 1·20@1·50c.; soft steel bars, 1·25@1·35c. Other quotations are: Steel hoops, 1·45@1·55c.; steel axles, 1 60@1·75c.; links and pins, 1·60@1·70c.; tire steel, 1·70c.; spring steel, 1·95@2·15c. All prices are for delivery on dock New York.

Plates.—Business is small, and prices are unchanged. We quote for universal mill plates, 1·20@1·30c. For steel plates prices are: Tank, 1·25@1·30c.; boiler shell, 1·35@1·40c.; flange, 1·45@1·55c; firebox, 1 65@1·70c., according to quality. Charcoal iron plates are 2·25 for shell, 2·75 for best flange and 3·25 for firebox. Rivets are 3@3 25c. for iron and 2 15@2·25c. for steel. Prices are for tidewater delivery.

Structural Iron and Steel.—Some small orders have been taken this week, and we quote for angles, 1·25@1·35c.; tees, 1·60@1·65c.; channels, 1·70@1·80c. The price of beams, New York delivery, is 1·70c. for ordinary sizes, 1·85c. for 20-in., and 1·95c. for 24-in., large lots. For less quantities 0·10@0·25c. higher are asked.

Steel Rails and Rail Fastenings.—The price for standard sections is $25 per ton at mill, or $26 tidewater. Girder rails are $25@$27 per ton at mill, according to section.

For rail fastenings demand shows more inquiry. Quotations are, for angle-bars, 1·15@1·25c.; spikes, 1·60@1·65c., bolts, 1·85@1·90c. for square nuts and 1·90@2c. for hexagon nuts.

Wrought-Iron Pipe.—Business continues quiet. Discounts are as follows for plain pipe, out of store: 1¼ in. and over, 67, 10, 10, 10, 10 and 10%; 1¼ in. and under, 57, 10, 10, 10, 10 and 10%. Galvanized pipe, 1½ in. and over, 55, 10, 10, 10, 10 and 10%; 1¼ in. and under, 50, 10, 10, 10, 10 and 10%. Boiler tubes, 1 in. to 2¼ in., 70, 10 and 5%; 2½ in. up, 75 and 5%. Cold-drawn seamless steel tubes, 60%.

Nails.—Business is moderate in amount, and prices show a decline. We quote for steel wire nails $1.35 Pittsburg, or $1.60 New York, for large lots. Cut nails are about $1.30 Pittsburg, or $1.55 New York.

Old Rails.—Old iron rails are quoted $12.50@$13.50, New York, with slight sales. Old steel rails are quoted $10.50@$11.50. Old steel rails fit to relay, standard sections, can be had at $19@$22, New York harbor delivery, according to condition. Old wrought-iron pipe is quoted $7.50@$8 per ton.

Scrap Iron.—Dealings have been small this week and we continue to quote for good machinery scrap $10@$12 per ton; ordinary cast scrap, $8@$9.50; stove-plate and mixed, $6.50@$8. Old car wheels are $10@$11 per ton, New York delivery.

Buffalo. Feb. 3.

(Special Report of Rogers, Brown & Co.)

Pig iron in this market remains quiet. In the absence of work under contract buyers are not disposed to anticipate their wants, and so business is chiefly confined to the car-load scale. Occasional inquiry for larger blocks for delivery extending several months ahead indicate a gradually increasing consumption. A few of the malleable iron works running on specialties report their order books comfortably filled, but those depending on railroad work are still doing very little. Our quotations below are on the cash basis, f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $12; No. 2 strong foundry coke iron, Lake Superior ore, $11.50; Ohio strong softener No. 1, $12.25; Ohio strong softener No. 2, $11.75; Jackson County silvery No. 1, $14.25; Southern soft No. 1, $12; Southern soft No. 2, $11.50; Lake Superior charcoal, $14.

Chicago. Feb. 3.

(From Our Special Correspondent.)

Pig Iron.—There has been some little improvement in pig iron during the past week. There has been more of a demand for metal in a small way and sales of a carload up to a couple of hundred tons made up quite a good total. Nothing of any consequence was booked, however. There are in the market a few inquiries in which a thousand or more tons figure. Prices are quite firm in Northern iron, the Southern material not having any great degree of strength. We quote: Lake Superior charcoal, $13.50@$14; local coke foundry No. 1, $11.75@$12.25; No. 2, $11.25@$11.75; No. 3, $11@$11.25; local Scotch foundry No. 1, $11.75@$12.25; No. 2 $11.25@$11.75; Southern coke No. 1, $11.50@$11.70; No. 2, $11@$11.20; No. 3, $10.50@$10.90; Southern No. 1 soft, $11.10@$11.40; No. 2 soft, $10 75@$10.90; Southern silveries No. 1, $12.15@$12.65; No. 2, $11.65@$12.15; Jackson County silveries, $14@$16.05; Ohio silveries No. 1, $15@$15.55; Ohio silveries No. 2, $14.50@$15.05; Ohio strong softeners, $14@$14.28; Alabama car wheel, $16.65@$17.15; coke Bessemer, $13@$13.50.

Bar Iron.—Orders for small supplies are in good number; none exceeds a couple of hundred tons. Car material is in better demand, as the railroads are coming into the market to buy at an early day. Bar iron is quoted for common 1·25@1·30c.

Steel Rails.—The rail business is yet poor, but few small sales having been made. It is a fact, however, that some of the big railroads are making inquiries, and it is to be hoped business will result. Rails are quoted $26, Chicago.

Billets.—Sales of billets have improved, some fair-sized orders having been booked. Inquiry has been much better.

Cleveland. Feb. 3.

(From Our Special Correspondent.)

Iron Ore.—The market has been featureless during the past week. The usual number of small sales were made and until there are developments looking toward the fixing of the ore prices for the coming season the probabilities are that the sales of ore will continue to be small. The movement of ore to the furnaces has been all that was expected, considering the fact that there has been talk about continued idleness of some of the furnaces that are out of blast. The outlook is somewhat brighter this week than last, in this particular. Following are the quotations: Standard hard speculars, Bessemer quality, $4.50@$5; standard hematites, Bessemer quality, $4@$4.50; standard hard hematites, non-Bessemer quality, $3.50@$4; standard soft hematites non-Bessemer quality, 50@$3$2..25.

Pig Iron.—In every way the pig-iron market has been quiet. Foundry iron has been sold in small lots, but the demand is not general or satisfactory. The purchases are made for immediate wants, the buyers prefering to take their chances on the market. It is the belief of some of the brokers that the buyers may find they made a mistake in not supplying future wants at the present prices. The quotations follow: Lake Superior charcoal, $13.50; Bessemer, $10.65@$11; No. 1 strong foundry, $11.55; No 2, $11.05; No. 1 Ohio Scotch, $11.55; No. 2, $11.05; Mahoning and Shenango Valley neutral mill irons, $9.50@$9.75; Mahoning and Shenango Valley red short mills, $9.50@$9.75.

Pittsburg. Feb. 6.

(From Our Special Correspondent.)

Raw Iron and Steel.—The market is still a waiting one, operations generally being limited. At the same time indications are not wanting in the market for iron and steel of an improving tendency not only among the local producers, but also at many of the other centers of the country. The increasing business is particularly noticeable at certain points in finished forms of material, although sales of pig iron show no change in values. In the East large orders for bridge material have been placed at low prices. In the local pig iron market there is increasing business, but sales have in some instances been made at the expense of values.

The increase in production has strengthened the position of buyers, and contrarily affected that of sellers. A good offer is eagerly taken, even if it means a slight concession from regular quotations. With the pressure to realize on current production there is small chance for an improvement, at least for the present, in prices, and producers would be satisfied to have the market continue firm at the figures recently secured. It is generally believed, however, in spite of the dullness, that business is actually increasing. During the week Philadelphia dealers report the capture of 14,000 tons of plates and shapes while inquiries for some additional good-sized lots were made. The demand for wire nails is improving; light transactions are noted at $1.30@$1.35, a decline. Scrap iron is dull with a slight improvement perceptible; the same remarks apply to old iron and steel rails.

Latest.—Market very dull; prices weak and very uncertain. Sales show a wide range in values. Bessemer sold in Pittsburg at $10.40@$10.45; mill iron, $9.65@$9.75; billets, Pittsburg, $15.50@$15.60. Bessemer sold in the Valley at $9.70@$10.05. Some of the Valley furnacemen are refusing to sell at present prices. The outlook is far from promising.

Statistics.—The following tables show the weekly sales of Bessemer, billets and mill iron for January, 1896 and 1897, together with the weekly prices of Bessemer, billets and mill iron for January, 1897; it will be found useful for reference:

SALES.

	Bessemer.	Billets.	Mill iron.	Total.
January 9.....	26,300	16,750	2,750	55,957
" 16.....	25,000	9,300	4,310	58,650
" 23.....	48,950	6,700	5,700	71,409
" 30.....	15,050	6,000	6,250	34,307
Total.....	115,300	38,750	19.010	220.323
Total, 1896.	106,850	58 550	32,200	258,240

PRICES.

	Bessemer.	Billets.	Mill iron.
January 9.....	$10.60@$11.00	$15.75@$16.00	$9.75@$10.00
" 16.....	10.50@ 11.00	15.75@ 16.25	9.60@ 1[illegible].00
" 23.....	10.40@ 10.75	15 65@ 16.00	9.25@ 9.75
" 30.....	10.35@ 10.65	15.50@ 16.00	9.65@ 9.75

The usual weekly report of transactions is given below:

COKE, SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
5,000	Bessemer, Feb., Mar., April, Pitts.	10.35
3,500	Bessemer, Feb., Mar., Pitts.	10.45
2,000	Bessemer, Feb., Mar., Valley	9.70
1,500	Bessemer, Mill Iron, Feb., Pitts.	9.75
1,200	Bessemer, Feb., Pitts	9.75
1,000	Mill Iron, Mar., Pitts	9.70
500	Mill Iron, prompt, Pitts.	9.65
500	Bessemer, Feb., Valley	10.05
500	Bessemer, Pitts.	10.60
500	Mill Iron, Feb., Pitts.	9.65
500	Mill All Ore Pitts.	10.15
350	Bessemer, spot, Pitts.	10.60
200	Mill Iron, spot, Pitts	9.65

CHARCOAL.

150	W. R. Mill, Pitts.	15.00
150	Cold Blast, Pitts.	$22.75
100	No. 2 Foundry, Pitts.	15.75
50	Cold Blast, extra Pitts	28.40

BLOOMS, BILLETS, BAR ENDS.

1,200	Billet ends, Pitts.	$12.00

BLOOMS, BILLETS, SLABS.

2,200	Billets, delivered, Pitts.	$15.50
1,000	Billets, Feb., Pitts.	15.65
800	Billets, Feb., Pitts.	15.75
500	Billets, prompt, Pitts.	15.75
500	Billets, Feb., Pitts.	16.00
500	Billets, spot, Pitts.	15.60

SHEET BARS.

1,000	Delivered, Pitts.,	$18.25
300	Delivered, Pitts.	17.75

STEEL WIRE RODS.

3,500	Feb., Mar., April, Pitts.	$21.50
500	Feb., Mar., April, Pitts.	21.00

MUCK BAR.

1,000	Neutral, delivered, Pitts.	$19.00
300	Neutral, delivered, Pitts.	19.25

FERRO-MANGANESE.

100	80 per cent., domestic, Pitts.	$46.00

SKELP IRON.

400	Narrow grooved, Pitts.	$1.10 4 m.
300	Wide grooved, Pitts.	1.10 4 m.
250	Sheared, Pitts	1.25 4 m.

SKELP STEEL.

350	Sheared, Pitts.	$1.10 4 m.
300	Wide grooved, Pitts.	95 4 m.
300	Narrow grooved, Pitts.	95 4 m.

SCRAP MATERIAL.

200	Cast scrap, gross, Pitts.	9.25
100	Wro't scrap, gross, Pitts	12.00
100	Wro't scrap, net, Pitts.	11.00
100	Wro't Turnings, net, Pitts.	7.00
100	Cast scrap, gross, Pitts.	9.50
50	Cast borings, gross, Pitts.	7.00

Philadelphia. Feb. 4.

(From Our Special Correspondent.)

Pig Iron.—In the absence of anticipated business, brokers and furnace men are making more confident predictions about extensive spring deliveries. This feeling is based upon the fact that large consumers are manifesting more interest in the market. The sales have been exceptionally light for a few days. This is all the more strange, as some buyers have very little iron on hand. The strong companies are not courting business and the weaker concerns are anxious to get more money for their spring output. Hence there is not much business. No. 1 foundry is $12.75@$13; No. 2, $11.75@$12; mill irons, $10.75@$11.25. Basic iron, after a long nap, is now in negotiation, and big deals are said to be practically closed. It is said that $10.75 will be the price.

Steel Billets.—The lowest offer made was said to be $17.25, but this is neither affirmed nor denied. There is no business of importance being done, though buyers are liable to break out any day. What is done in one or two other markets will have its influence on coal buyers.

Merchant Bars.—Competition resulting from the effort to keep mills running even half time has led to some distressing quotations. Bars are quoted at 1·15c. in large lots, but frequently small lots are taken at not much better prices.

Sheets.—Mill owners have succeeded in gathering in a fair amount of mid-winter business and the outlook to-day is all right. The shaded quotations are likely to be taken advantage of. Light galvanized is under fair request and if freight rates were right there might be some business abroad.

Pipes and Tubes.—Very little business has opened up. The spring trade must be very active if all of the talked-of work is done or even begun then.

Merchant Steel.—Dealers had the best week since January 1st, but no one dares to ask fair prices.

Skelp.—The manufacturers are waiting for business and have, so it is reported on the street, made some very low quotations.

Plates.—The mills are doing more work than in December but perhaps at fractionally lower prices, certainly at less than some Decemoer prices. From all that can be gathered a good many intending buyers are holding off. But what will happen if they all conclude about the same time to come in and buy? Tank is 1·25c., universal 1·30c., shell 1·35c., flange 1·50c., firebox 1·70@2·20c.

Structural Material.—The hesitating policy everywhere so apparent would have a depressing effect on prices were there any room to get them lower. Orders go to mill regularly for small lots. Angles are 1·25c., beams and channels from 1·70c. up.

Steel Rails.—There is practically n othing to report.

Old Rails.—Holders of rails that can be had when wanted report a dull market at $14.

Scrap.—Some scrap dealers are en couraged to think that from this out buyers will begin picking up odd lots when they come across stuff to suit them. Spring steel is $10; boiler clippings, $9.50; machinery cast, $9.50; wrought turnings, $8; railroad scrap, $13 and under.

METAL MARKET.

NEW YORK, Friday Evening, Febuary 5, 1897.

Gold and Silver.

Prices of Silver per Ounce Troy.

Jan., Feb.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.	February.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
0	4.86½	29 11/16	61 11/16	.500	3	4.86¼	29¾	64¾	.501
1	4.86½	29 11/16	61⅝	.500	4	4.86¼	29¾	64¾	.501
2	4.86¼	29 11/16	61⅝	.500	5	4.86¼	29¾	64¾	.501

From best advices received from London there is no probability of any change at present in regard to opening the India mints. Money in the East is dear and some of the Indian banks have raised their discount rates to 12%. Silver remaius quite steady and without feature. Inquiry has come lately from China, Japan and the Continent.

The United States Assay Office in New York reports the total receipts of silver at 85,000 oz. for the week.

Gold and Silver Exports and Imports, New York

For the week ending February 5th, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

	Gold.		Silver.		Total Excess, Exp. or Imp
	Exports.	Imports.	Exports.	Imports.	
We'k	$30,950	$11,212	$52,516	$26,411	E. $45,843
1897..	217,570	239 423	3,959 397	252,713	E. 3,681,831
1896..	9,191,135	9,916,517	3,980 605	165,538	E. 3,089,685
1895..	25,635,387	542,967	3,589,709	180,217	E. 28,501,912
1894..	2,364,358	701,925	5,155,764	118,994	E. 6,699,203

The gold exported for the week went to the West Indies, the silver to London and South America. The gold and silver imported came chiefly from Central and South America.

Average Monthly Prices of Silver

In New York and London, per ounce Troy, from January 1st, 1897, and for the years 1896 and 1895.

Month.	1897.		1896.		1895.	
	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.
January	29 74	64·79	30·69	67·13	27·36	59·69
February	.....	.....	31·01	67·67	27·47	59·90
March	.....	.....	31·34	68·40	28·33	61·98
April	.....	.....	31·10	67·92	30·39	66·61
May	.....	.....	31·08	67·88	30·61	66·75
June	.....	.....	31·46	68·69	30·47	66·64
July	.....	.....	31·45	68·75	30·48	66 75
August	.....	.....	30·93	67·34	30·40	66 61
September	.....	.....	30·19	65 68	30·54	66·90
October	.....	.....	29 68	65·05	30·89	67·64
November	.....	.....	29·46	64 98	30·79	67·42
December.	.....	.....	29·70	65·24	30·40	66 47
Year	.....	.....	30·67	67·06	29·53	65·28

The New York prices are always per fine ounce, or ounce of pure silver; the London quotation is per standard ounce, or for metal ·925 fine.

Gold and Silver Exports and Imports

At all United States ports, December, 1896, and years from January 1st, 1896 and 1895:

	Doin and bullion.		In ores.		Total excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
GOLD					
Dec..	$405,856	$2,572,271	$25,970	$227,076	I. $2,367,521
1896..	56,742,844	102,766,438	209,621	1,963,124	I. 47,777,097
1895..	104,605,623	32,538,736	362,379	1,857,656	E. 70,571,916
SILV.					
Dec..	6,819,145	1,279.801	101,285	1,661,009	E. 3,980,020
1896..	63,029,336	12,504,577	993 405	17.730,280	E. 33,777,884
1895..	53,833,153	11,285,007	377,933	13,087,340	E. 29,837,739

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

FINANCIAL NOTES OF THE WEEK.

Little change is to be noted in the general course of business, and the disposition to wait developments still continues. There is a slight expansion noted in some quarters, but the improvement is not sufficient to deserve remark. The tendency to accumulate money in New York still continues.

The New York Chamber of Commerce has spoken very strongly on the necessity of immediate consideration of currency reform measures. In so doing it has undoubtedly expressed the general opinion of business men, who are looking very doubtfully on the priority given to tariff questions by the political managers.

The Treasury gold reserve continues to grow, having gained about $866,000 during the week. The conditions in the exchange market continue about the same, and there is no present expectation of gold exports.

The United States Treasury report shows that receipts in January were $24,316,994, against $29,237,670 for the corresponding month of last year. The falling off was entirely in customs. The expenditures show a reduction, the amount expended last month being $30,269,389, against $32,529,340 for January, 1896. The annexed table shows the receipts and expenditures in detail for the seven months of the fiscal year, from July 1st to January 31st.

	1896.	1897.
Customs	$98,722,070	$79,098,557
Internal revenue	87,925,866	88,753,582
Miscellaneous	10,157,788	13,972,459
Total receipts	$196,805,724	$181,824,598
Total payments	$215,492,102	$225,679,390

The excess of expenditures was $43,854,792 this year, against $18,686,378 a year ago. The payments on account of pensions amounted to $82,473,846 this year.

Demand for Indian Exchange has been light, and Council bills sold in London at 15d. per rupee. The London *Statist* of latest date received says: "The position at the moment is curious. It is known that the Indian government will sooner or later be obliged to raise a large loan, and, indeed, it received tenders for a million of sterling bills. If the Indian government borrows money in this market it will have no need to sell council drafts, as it can meet its home requirements out of the proceeds of the loan, retaining for use in India the money that would otherwise be sent home. In spite of the probable issue of a sterling loan and the fact that the Treasury cash balance in India is still abnormally low, the Indian government has shown its willingness to sell drafts freely, and thus make large remittances home in order to relieve the pressure for money in the Indian money market."

The following statement from the Treasury Department shows the money in circulation in the United States on February 1st, 1897.

	In Treasury.	In Circulation.	Total.
Gold coin	$130,100,363	$515,468,129	$645,568,492
Stand. sil. dollars.	388,617,255	56,361,136	444,978,391
Sub. silver	15,414,575	60,889,370	76,303,945
Gold cert.	1,460,160	37,586,629	39,046,789
Silver cert.	11,678,971	361,336,533	373,015,504
Treas'y notes, 1890	35,664,898	82,733 382	118,398,280
U. S. notes	78,191,780	268,486,236	346,681,016
Cur'y cert.	165,0 0	65,350,000	65,515,0 0
Nat. bank notes..	17,328,389	217,766,273	235,094,662
Totals	$678,624,391	$1,665,977,6:8	$2,344,602,079

The total circulation is estimated at $23.05 per capita. During January there was a net increase of $15,754,288 in the circulation.

The statement of the United States Treasury on Thursday, February 4th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Jan. 28.	Feb. 4.	Changes.
Gold	$144,278,757	$145,144,933	I. $866 176
Silver	19.765.266	18,726,190	D. 1 039,076
Legal tenders	12,099,366	12,290,330	I. 190,964
Treasury notes, etc..	35,197,989	34.233,209	D. 964,780
Totals	$211,341,378	$210,394,662	D. $946,716

Treasury deposits with national banks amounted to $16,509.540, an increase of $5,577 during the week.

Total United States Treasury notes issued under act of July 14th, 1890, in general circulation and in the Treasury, $118,192 280. Against these are held in the Treasury 9,518,164 coined standard silver dollars and silver bullion purchased at a cost of $108,674,116, making a total of $118,192,280.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending January 30th, gives the following totals, comparisons being made with the corresponding weeks in 1896 and 1895:

	1895.	1896.	1897.
Loans and discounts	$490,315,100	$447,112,700	$188,765,700
Deposits	546,935,200	490.447,200	563,331,800
Circulation	11,371,900	13,799,000	18,111,500
Reserve:			
Specie	81.555,500	76,845 900	79,684,600
Legal tenders	91,937,300	85,389,300	120,296,600
Total reserve	$173,492,800	$162,235,200	$199,981,200
Legal requirement	136,741,300	122,611,800	140,832.950
Surplus reserve	$36,751,500	$39,623,400	$59,148,250

Changes for the week this year were increases of $550,500 in specie, $1,493,000 in legal tenders, and $2,080,450 in surplus reserve: decreases were $1,573,000 in loans and discounts, $147,800 in deposits, and $368,300 in circulation.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$79,684,600
1896	.....	.....	76,845.900
Bank of England	$186,539,990	.....	186,539,990
1896	242,978,445	.....	242,978,445
Bank of France	380,204,600	$246,360,500	626,585,100
1896	387,301,099	258,164,812	645,465,911
Imp. Bank of Germany	.....	.....	219,520,000
1896	.....	.....	233,420,000
Austro-Hungarian Bank	151,660,000	63,220,000	214,880,000
1896	124,250,000	63,476,000	187,726,000
Netherlands Bank	13,167.000	34,289,000	47,456,000
1896	15,529,000	34,244,000	49,773,000
Belgian National Bank	.....	.....	20,433,000
1896	.....	.....	19,995,000
Bank of Spain	42,642,000	51,899,000	94,511,000
1896	40,022,000	51,010,000	91,032,000
Bank of Italy	59 780,000	11,985,000	71,765,000
1895	59,860,000	9,950,000	69,810,000
Imp. Bank of Russia	518,355,000	.....	518,355,000
1895	395,035,000	.....	395,635,000

The return for the Associated Banks of New York is of date January 30th; all the others are of February 4th, except the Bank of Italy, December 10th, and the Bank of Russia, December 16th-28th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England and the Bank of Russia report gold only. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year up to January 21st are reported by Messrs. Pixley & Abell's circular as below:

	1896.	1897.	Changes.
India	£234,498	£320,200	I. £85,702
China	12,400	14,550	I. 2,150
The Straits	55,200	2,600	D. 52,600
Totals	£302,098	£337,350	I. £35,252

Arrivals for the week this year were £91,000 in bar and £38,000 in Mexican dollars from New York, a total of £129,000. Shipments for the week were £40,000 in bar silver to India, and £14,550 in Mexican dollars to China, a total of £54,550.

The coinage executed at the Mints of the United States during the month of January, 1897, is reported by the Treasury Department as below:

Denominations.	Pieces.	Value.
Double eagles	384,100	$7,682,000
Eagles	12,000	120,000
Quarter eagles	568	1,420
Total gold	396,668	$7,803,420
Silver dollars	1,812,000	$1,812,000
Half dollars	92,000	46,000
Quarter dollars	308,000	77,000
Dimes	298,000	29,800
Total silver	2,510,000	$1,964,800
Five-cent	1,090,000	$54,500
One-cent	2,350,000	23,500
Total minor	3,940,000	$83,000
Total coinage	6,846,668	$9,851,220

The Mints continue actively at work, and the coinage reported for the month was large.

Prices of Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked.
Mexican dollars	$0.50¾	$0.51½
Peruvian sols and Chilean pesos	.45¾	.47
Victoria sovereigns	4.85	4.90
Twenty francs	3.85	3.90
Twenty marks	4.73	4.80
Spanish 25 pesetas	4.78	4.85

Other Metals.

Copper.—The market keeps firm, but has become rather quiet, if not dull. Prices in England sagged off somewhat and this proved to be a damper, which is easily explained, as the recent advance was rather sharp. The large sales made by the Lake companies during the past month and the fact that the Calumet & Hecla Company has continued to fill orders for certain of the larger manufacturers at 11¼c., made it rather hard for producers of electrolytic copper to make any progress with home consumers, and foreigners have not met the prices asked here. At the same time there is little inclination on the part of holders to give way in price, and unless signs are very deceptive the present calm may be the forerunner of higher prices. Cables from Europe continue to report a very large consumption over there for all purposes. Most of the Lake companies are asking 12c. for shipment by all rail from the Lakes, but as already mentioned, the Calumet & Hecla has been selling somewhat below, and second-hand ingot copper is also obtainable at a trifle less. For electrolytic copper prices have been rather irregular at 11·40@11·50c. for cakes, wirebars or ingots, and 11·15@11·25c. for cathodes. Casting copper remains scarce at 11·30@11·40c., according to brand and quantity.

In London g. m. b.'s opened slightly easier at £50 17s. 6d., with rather a tendency to ease off somewhat more, but speculative support was soon forthcoming, and prices advanced to £51 10s.@£51 12s. 6d. for spot and £51, 17s. 6d.@£52 for three months prompt. In refined and manufactured sorts, business has been rather irregular and depressed, as lower prices have been accepted in several instances. We have to quote: English tough £53@£53.10s.; best selected, £53 15s.@£54 5s.; strong sheets, £60 10s.@£61; India sheets, £57@£57 10s.; yellow metal, 5⅛d.

The visible supplies for the second half of January have again decreased 1,100 tons, and the figure is now lower than for many years past.

Tin appears to be entirely governed by speculation. The article was energetically driven up last week, but the high prices could not be maintained—at least for the moment—and a not inconsiderable drop took place. Consumers over here have looked with suspicion upon the manipulations abroad, and very little business was transacted. The business done was to cover only immediate wants and at figures which were invariably below the importing price. We quote spot and February at 13·60@13·70c. and March to June 13.70@13·80c.

We have reported that last week the price in London touched £63 spot, but after that prices quickly gave way and came down to £61 2s. 6d. Speculators then came to the rescue, and the closing prices in London are £61 15s.@£61 17s. 6d. for spot and £62 7s. 6d.@£62 10s. for three months prompt.

The stocks of tin on hand and afloat on February 1st are reported as below, in long tons:

	Store.	Afloat.	Total
London	18,695	2,325	21,020
Holland, Banka and Billiton	4,700	1,100	5,800
" Straits	774	1,100	1,874
United States	1,963	1,675	3,638
Totals	26,132	6,200	32,332

The total was 510 tons less than that reported on January 1st.

Lead.—The supplies for the moment are very small; refiners complain of not being able to secure sufficient raw material. In the meantime all sorts of rumors are current regarding coming legislation, and it appears fairly likely that lead and lead ores will be favored with a higher protective duty. This made consumers rather nervous, and again a not inconsiderable advance has to be recorded. Early in the week sales took place at 3⅛c. New York but the market closes very firm at 3·20c. for both spot and February shipment. In St. Louis the market is reported to have been wild, and very large quantities changed hands at quickly rising prices. At the close 2·90@2·92½c. is quoted for common, and 2·95c. for desilverized.

The foreign market has been flat, and Spanish lead has declined to £11 13s. 9d.@£11 15s., and English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is strong and largely higher. Latest sales are on a basis of 2·92@2·95c. for Missouri brands and 2·97½@2·93c. for desilverized, corroding. The undercurrent appears to be healthy, and it looks a little as if the boom had come to stay.

Spelter.—Prices continue very irregular. Efforts have again been made to buy up such stocks, which had accumulated at smelters' works and which were likely to weigh on the market, but consumers appear not to take any stock in these manipulations and are covering only their immediate wants. Some sales have been made for export, but that does not pay at present prices. We have to quote 3·95@4c. New York, with little business doing.

The foreign market is steady at £18 for good ordinaries and from 2s. 6d.@5s. more for specials.

Antimony remains flat and quotations are unchanged: Cookson's, 7¼c.; U. S. Star, 7c.; Hallett's, 6¾c.

Nickel.—Business is fair and prices show an upward tendency, but without quotable change as yet. We quote for ton lots 33@36c. per lb., with 37@39c. for smaller orders. London prices are steady at 14@15d. for large orders and 15@16½d. for small lots. The New York price is about on a parity with London, allowance being made for the duty of 6c. per lb. here. The Paris quotation is 4 fr. per kilo, equivalent to about 36c. per lb.

Platinum.—There is an upward tendency and prices are firm at $14.50@$15.50 per oz., New York. London quotations are 57s. 6d.@59s. per oz.

For chemical ware, best hammered metal, Messrs Eimer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams, for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes, 52c., 54c. and 56c. per gram. Wire and foil are 49c., 50c. and 51c. per gram. The current retail price for crucibles is 60c. per gram.

Quicksilver.—The New York quotation continues at $37.75 per flask. The London price is £6 17s. 6d., with £6 16s. 3d. named from second hands.

The Minor Metals.—Quotations for these metals are given in the table below, the prices being for New York delivery:

Aluminum:	
No. 1, 98% pure ingots for re-melting, per lb	37@42c.
No. 2, 94% pure, " " "	31@34c.
Ingots from scrap, per lb	30c.
Rolled sheets, per lb	46c. up.
Aluminum-nickel casting metal, per lb	25@40c.
Bismuth, per lb	$1.30@$1.80
Phosphorus, per lb	50@55c.
Platinum, per oz	$14.50@$15.50
Tungsten, pure powder, per lb	70c
Tungstic acid, per lb	45c.
Ferro-tungsten, 60% in ton lots, per lb	60c.

Variations in prices are chiefly on size of order.

Average Monthly Prices of Metals

In New York, for the years 1897 and 1896; in cents per pound.

Month.	COPPER.		TIN.		LEAD.		SPELTER.	
	1897.	1896.	1897.	1896.	1897.	1896.	1897.	1896.
Jan.	11·75	9·87	13·44	13·02	3·01	3·08	3·91	3·75
Feb.	.....	10·61	.....	13·44	.....	3·19	.....	4·03
March	.....	11·03	.....	13·30	.....	3·14	.....	4·20
April	.....	10·98	.....	13·34	.....	3·07	.....	4·07
May	.....	11·15	.....	13·51	.....	3·03	.....	3·98
June	.....	11·67	.....	13·59	.....	3·03	.....	4·10
July	.....	11·40	.....	13·63	.....	2·96	.....	3·97
August	.....	10·98	.....	13·49	.....	2·73	.....	3·76
Sept.	.....	10·66	.....	13·15	.....	2·77	.....	3·60
October	.....	10·66	.....	12·91	.....	2·80	.....	3·72
Nov.	.....	11·23	.....	13·09	.....	2·96	.....	3·99
Dec.	.....	11·28	.....	12·96	.....	3·04	.....	4·14
Year:	.....	10·88	.....	13·29	.....	2·98	....	3·94

Philadelphia.††	Imports. Week, Jan. 29.	Imports. Year, 1897.
Antimony, casks	.....	.....
Copper ore, long tons	2,700	2,700
Ferro-manganese, long tons	.....	.....
Ferro-silicon	.....	.....
Iron ore, long tons	7,350	10,490
" pig " "	.....	.....
" pyrites, long tons	.....	.....
" and steel scrap, long tons	.....	.....
Manganese ore, long tons	.....	.....
Spiegeleisen " "	.....	.....
Tin " "	.....	25
Tin and black plates, boxes	.....	1,783

†† From New York Metal Exchange Reports.

Imports and Exports of Metals.

New York.*	Week, Feb. 4. Expts.	Impts.	Year, 1897. Expts.	Impts.
Aluminum ... lbs.	.....	.....	.....	.....
Antimony ore....short tons	.....	10	.....	53
" regulus... casks	.....	.....	.....	95
Brass, old.....short tons	5	.....	17	.....
Copper, fine .....long tons	320	102	6,343	338
" matte .... " "	47	.....	1,642	.....
" ore..... " "	.....	.....	.....	.....
" sulphate.. " "	129	.....	262	.....
Iron ore..... " "	.....	.....	.....	.....
" pigs, bars, rods..... " "	183	.....	1,159	215
Iron pyrites..... " "	.....	.....	.....	2,670
" sulphate..... " "	.....	.....	.....	.....
Ferro-mangan'se " "	186	.....	271	52
Ferro-silicon..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	60
Spiegeleisen..... " "	.....	.....	.....	188
Lead bullion..... " "	27	437	2,537	4,081
" pigs and bars " "	.....	.....	.....	.....
Magnolia metal... " "	.....	.....	57	.....
Nickel..... " "	15	.....	18	5
Steel, billets, rods. " "	1,023	388	1,064	2,499
Tin..... " "	52	10	182	1,072
Tin dross..... " "	4	.....	4	.....
Tin and black plates, boxes.	.....	12,478	.....	74,390
Zinc dross.....long tons	22	.....	22	.....
Zinc (spelter).....long tons	.....	50	56	720

*Metal Exchange Reports.

Baltimore.**	Week, Feb. 4. Exp.	Imp.	Year, 1897. Exp.	Imp.
Bismuth metal, cases	.....	.....	.....	.....
Chrome ore..... long tons	.....	.....	.....	.....
Copper, fine..... " "	30	.....	3,223	.....
" matte..... " "	.....	.....	.....	.....
" sulphate.. " "	.....	.....	606	.....
Iron ore ..... " "	.....	.....	.....	14,472
" pigs, bars, ingots, blooms. " "	.....	.....	80	820
Iron oxide..... bags	.....	.....	.....	.....
" pyrites.....long tons	.....	.....	.....	.....
Ferro-manganese " "	36	.....	528	.....
Ferro-silicon..... " "	.....	.....	.....	.....
Lead..... " "	.....	.....	.....	.....
Limestone.....short "	.....	.....	.....	.....
Manganese metal,long "	.....	.....	.....	1,610
Spiegeleisen ..... " "	.....	.....	.....	260
Steel..... " "	.....	.....	.....	197
Steel wire, bundles	.....	.....	11	1,413
Tin, long tons	.....	.....	.....	158
Tin and black plates, boxes	.....	.....	.....	4,101
Zinc (spelter) long tons	2	.....	2	.....

**From our special correspondent.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Feb. 5.

Heavy Chemicals.—A little more inquiry is noticeable in the heavy chemical market this week, and more disposition to buy, which so far, however, has not resulted in much actual business. Buyers are realizing that prices are low, and that purchases can now be made to better advantage than later. We quote: Caustic soda, 60%, $2.22½@$2.42½; 70·74@76%, $2.12½@$2.22½ per 100 lbs. Alkali, 58%, 70@75c. for 50-ton lots and over, and 80@90c. for smaller quantities; 48%, $1@$1.20 for jobbing lots. Caustic soda ash, 48°, $1.50@$1.70. Bleaching powder, prime brands, $1.75@$1.87½; Continental, $1.62½@$1.75 per 100 lbs. Bicarb. soda, English, 1·75@2c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs.; according to make. Sal-soda, English, 62½@67½c.; American, 65c. (in barrels), 80c. (in kegs) per 100 lbs. Hyposulphite of soda, 1·65@1·85c. in casks; 1·75@2c. in kegs.

Acids.—There has been a better movement in acids this week, with more inquiries for immediate consumption. A further advance in acetic acid has occurred due to an increase in the cost of acetate of lime, which has advanced 10% during the last fortnight. Blue vitriol is higher by 4@4¼c., due to a sharp advance in the prices of copper and brimstone. Quotations per 100 lbs. in New York and vicinity in lots of 50 carboys or over are as follows: Acetic acid, commercial No. 8 (in barrels), $1.40@$1.50; in carboys, $1.50@$1.65; redistilled, 28%, in bbls., $1.70@$1.80; in carboys, $1.90@$2.05; muriatic acid, 18°, 75@85c.; 20°, 85@95c.; 22°, $1.15@$1.25, according to make and quantity. Nitric acid, 36°, $3.50@$4; 40°, $4@$4.50; 42°, $4.50@$5.50. Oxalic acid, $7.25 ex-dock and $7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 85c.@$1 in carload lots, 10@15c. higher for small quantities. Chamber acid, $6@$6.50 per ton at factory. Blue vitriol, $3.75@$4 according to grade and order.

Brimstone.—This market is considerably stronger than it was a week ago, and prices have advanced. For spot, quotations are $21@$21¼, and for shipment, $20⅝@$20½, best unmixed seconds. Thirds are $1 per ton less. The steamer *Carmania* is now in port with a cargo of 1,500 tons.

Fertilizing Chemicals.—A little demand has continued from the South, and during the week some of the Northern concerns have come into the market, one of them absorbing quite a lot of goods. Packers continue to hold firm on what goods they may have to offer. We quote:

Sulphate of ammonia, gas liquor, $2.25 for shipment, and $2.30 for spot; bone, $2.10@$2.15 per 100 lbs. Dried blood, high grade Western, $1.80@$1.85 per unit New York; f. o. b. Chicago, $1.50@$1.55 per unit; low grade, fine ground, Western, $1.45@1.50 f. o. b. Chicago. Azotine, $1.70@$1.75 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13%@15%, av. P_2O_5, 54@65c. per unit at sellers' works in bulk. Dissolved bone black, 17%@18% P_2O_5, 85c. per unit. Acidulated fish scrap, $10, and dried scrap $19.50@$20, f. o. b. fish factory. Tankage, high grade, $14@$14.25 per ton; concentrated, $1.35 per unit, f. o. b. Chicago; New York, $20; low grade, $19. Bone tankage $19@$20; ground one, $21@$23. Bonemeal, $20@$22 50.

Sulphate of Potash: 90-95%, New York and Boston, $1.96½; Philadelphia, Baltimore and Norfolk, $1.98; Soutnern ports, $2.

Double Manure Salts: 1·03@1·05½c., basis of 48% chlorate high grade (basis 90%), 1·99½@2·03c., in bulk, 24@36% per unit O. P., 36½@38c.

Muriate of Potash: We quote: 1·78c. at New York and Boston, 1·79½c. Philadelphia, Baltimore and Norfolk, and 1·81½c. Charleston, Savannah, Wilmington and New Orleans, for 80@85% basis of 80%, in lots of 50 tons and upward.

Chlorate of Potash.—Conditions remain firm; the price is maintained as previously quoted, which is 8@8½c. according to quantity.

Kainit.—Quotations per ton of 2,000 lbs. are $8.80@$9.25 per ton for shipments; the same for bulk, ex-ship.

Nitrate of Soda.—This article has weakened somewhat, and can now be obtained at 1·85@1·87½c. from a vessel now discharging. With this lot out of the market it is thought the price will again be 1·90c. The *Condor* is now in port with about 26,000 bags.

Messrs. Mortimer & Wisner, the well-known brokers of this city, send us the following statement of nitrate of soda, issued under date of February 1st, 1897.

	1897.	1896.	1895.
	Bags.	Bags.	Bags.
Imported into Atlantic ports from West Coast S. A., from Jan. 1, 1897, to date	67 747	87,837	93,560
Stock in store and afloat Feb. 1, 1897, in New York	123,461	75,307	64,394
Boston	5 725	.....	1,782
Philadelphia	.....	420	1,000
Baltimore	9,200	3,500	1,000
Norfolk, Va	.....	.....	2,900
Charleston	.....	.....	3,000
To arrive, due May 15, 1897	159,000	317,000	238 000
Vis. supply to May 15, 1897	297,389	396,227	312,776
Stock on hand Jan. 1, 1897	123 593	53 839	58,367
Deliveries past month	52,951	61,249	77.851
Total yearly deliveries	.....	716,264	828,012
Prices current Feb. 1.	1 87½	1.70	1.82½

Liverpool. Jan. 27.

(Special Report of Joseph P. Brunner & Co.)

There is very little movement in the ordinary lines of heavy chemicals, while at the same time prices are nominally unchanged.

Soda ash is in limited demand. Quotations vary considerably according to export market, and nominal range for tierces may be called about as follows: Leblanc ash, 48%, £4@£4 5s. per ton; 58%, £4 5s.@£4 10s. per ton, net cash. Ammonia ash, 48%, £3@£3 10s. per ton; 58%, £3 5s.@£3 15s. per ton, net cash. Bags 5s. per ton under price for tierces. For the American market special terms are quoted.

Soda crystals are quiet, at £2 5s.@£2 7s. 6d. per ton, less 5% for barrels and 7s. less for bags.

Caustic soda is inactive and although makers are firm, there are one or two second-hand parcels obtainable at a shade under manufacturers' quotations. We quote spot range, as to market, about as follows: 60%, £6 3s. 9d.@£6 5d. per ton; 70%, £7 3s. 9d. @£7 5s. per ton, net cash; 74%, £8 2s. 6d @£8 5s. per ton; 76%, £8 15s.@£9 per ton, net cash. Bleaching powder is dull, but prices are well maintained at £6 15s.@£7 per ton, net cash, for hardwood packages, as to market. Chlorate of potash is neglected and 4⅛@4½d. per lb. is about nominal range, makers still holding for the higher figure. Bicarb. soda is selling at the usual price of £6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with usual allowances for larger packages. Sulphate of ammonia has become quiet and prices eased off to about £8 2s. 6d.@£8 5s. per ton, less 2½% for gray, 2½% and 2½% in double bags f. o. b. here, as to quality. Nitrate of soda is firmly held on spot, at £8 7s. 6d.@£8 10s. per ton, less 2½% for double bags f. o. b. here, according to quality. There is not much doing however. Carb. ammonia, lump, 3d. per lb.; powdered, 3¼d. per lb., less 2½%.

MINING STOCK.

Complete quotations will be found on pages 154 and 155 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
Baltimore.	Salt Lake, Utah.	Valparaiso, Chile.
Pittsburg.	San Francisco.	London, England.
Cleveland, page 154.	Denver, Colo.	British Columbia.

New York, Friday Evening, Feb. 5.

There has been more inquiry for mining securities during the past week. It has been said by brokers that the public is showing great caution before it invests in any stocks, the cause being that there are in existence to-day many companies whose capital stock is overrated. Until recently these concerns found a place for their stock in New York, but the investing public and the brokerage element are becoming wiser.

The New York Mining Exchange is adding to its list of mining stocks continually, and only the other day Japan, which is located in the neighborhood of the Tom Boy in San Miguel County, Colo., was listed and shares sold at $2 52 and $2.60. There are also many Cripple Creek dividend-paying stocks on this list in which business has been quite active this week.

The Consolidated Stock and Petroleum Exchange, which handles the Comstocks and Californias principally, reports a somewhat better tone to the market than last week. The Cripple Creek stocks dealt in on the Consolidated Exchange have been fairly steady this week, owing to a better feeling prevailing in the Western markets.

The Comstocks have been on an upward move this week, and it is notable that Consolidated California & Virginia has jumped from $1.20 on January 9th last to $2 30 on January 30th, receding to $2.20 on February 2d. The other stocks in this group show somewhat smaller advances.

Only slight offerings have been made in California stocks this week. Standard made an advance of 25c. from the closing price last week, which was $1.50. The others were very quiet, with the exception of Brunswick, which receded a couple of cents.

Boston. Feb. 4.

(From Our Special Correspondent.)

The market for the week has been unsettled, mainly from two causes; the check in the advance of copper and the breaking out of fire in the Tamarack mine. In addition to these was the general disposition to realize after a very material advance in the prices of stocks. The volume of business has continued large, due to this disposition to realize profits. The Tamarack fire had an effect on that stock, carrying the price down from $121 to $109½. It rallied sharply, however, reaching $119 the next day, but this morning fell off to $116 but closed at $118. Allouez, which is purely speculative, advanced from 85c. to $1, which is now asked. Arnold declined from $3½ to $3, closing $3½. Atlantic is fairly sustained at $24 ex-div. $1, against $25 last week. Calumet & Hecla, which last week touched $360, sold off only $1 per share and is again $360 for good round lots. Centennial went up from $5¼ to $7, closing $6⅛. Franklin declined from $13 to $12½. Kearsarge advanced at first from $19¼ to $20¼, and then fell off to $18½. Osceola declined from $34¾ to $32½, closing $33¼. Quincy was $117 to $116; now selling dividend off. The scrip hangs around $103 with $6¼ more to be paid April 16. Tamarack, Jr., is off $1½ to $17, but without activity. Tecumseh $3¼ to $3 and Wolverine $10⅝ to $10⅛ per share.

Boston & Montana was at first strong, and advanced from $108 to $112½, but broke to $110, but was up this morning to $111¾, closing at $109⅝. Butte & Boston, after going up from $12 to $13¼, closed at $12. Old Dominion rallied from $18¼ to $19½, closing at $18.

In the gold stocks Gold Coins held its own fairly well, declining from $3¾ to $3½, at which it closed. Merced gained from $10 to $10½, and then broke to $8⅛. Pioneer at first advanced from $5½ to $6, and closed at $5. Santa Ysabel went up from $12¼ to $14½, and sold down to $13, closing a fraction higher.

At the close the market continued unsettled, with a disposition to realize.

Chicago. Feb. 3.

(From Our Special Correspondent.)

Business on the Mining Board has not been especially active, but something has been done nevertheless, and better things are hoped for in the future. The sales on the board were 10,500 shares on Thursday, January 28th; 7,450 shares on January 29th; 10,600 shares on January 30th; 14.200 shares on February 1st, and 10 200 shares on Tuesday, February 2d, a total of 52,950 shares for the week. Among the closing quotations we note the following: Isabella, 48½@48¾c.; Delaware Chief, 37¼@38c.; Peerless, 14¾@15c., and Pharmacist, 12⅝@13¼c.

Cleveland, O. Feb. 3.

(From Our Special Correspondent.)

Very few if any sales of mining stocks were made in this city during the past week. The only change in the quotations is in the withdrawal of bids for Minnesota. The brokers report that inquiries continue to be made by prospective investors, and the indications are that some business will be transacted in mining stocks during the coming spring and summer.

Salt Lake City. Jan. 30.

(Special Report of James A. Pollock.)

The mining stock market this week was dull, weak and lower in the speculative stocks, although the declines were merely fractional. The investment stocks were steady. There seemed to be a disposition to let the market take care of itself. A lack of support by local interests and but limited foreign buying combined to make the market what it was. For no good reason, Ajax was somewhat lower. This is but a repetition of the recent history of the stock, however. Anchor was stationary and not active, while there was a slight increase in inquiry for Alliance. This latter stock has been very quiet for months, and there is little or no reason for the movement now. Bogan was lower again. Little or no change occurred in Bullion-Beck, but the close was somewhat stronger. Buckeye sold up several points about the middle of the week on bull reports from the properties, but the close was slightly weaker. Centennial-Eureka remains inactive, for the reason that none of the stock remains on the market. Daly was only fairly active, but the stock continued in good tone, with very limited offerings. Daly-West is again shipping high-grade ore. Considerable inquiry for the stock, both local and outside, held prices very firm. Dalton & Lark showed little activity and no change occurred in prices. Dalton has elected a new board of directors, at its annual meeting just held. The stock was not strong. East Golden Gate stockholders have not paid the recent assessment, now delinquent, very generally. Heavy selling caused Four Aces to show additional weakness and the close was far down. There were a few more buyers for Galena, but quotations changed little. Work on the new shaft and hoisting plant is to commence at once. Geyser was in better demand, with sales at a higher figure. Lucky Bill was somewhat lower, on account of the recently levied assessment. Little Pittsburg broke very heavily, on account of manipulation. To the fact that practically all of the stock has been tied up under the option is alone due the failure of Mercur to cut much figure in the market during the week, there being few sellers in. No new developments occurred in connection with the option, but it seems reasonably certain that the deal will go through. Mammoth was shaded a few points, but the market very readily absorbed all stock offered at cut prices and the close was stronger. Northern Light suffered somewhat and did not close at last week's figures. The mill is expected to commence operations next month. Ontario was in better demand, with the stock very scarce. Rover held its own on encouraging reports from the properties. Richmond-Anaconda was 25% lower, while Sunbeam was also shaded. Silver King is making a heavy ore production, and sellers of the stock are few. The Sunshine is reported to be looking materially better, and the price of the stock showed some improvement. Both of the Swanseas were lower. Sacramento did nothing. Utah was in slightly better demand.

San Francisco. Jan. 30.

(From Our Special Correspondent.)

At the opening there was quite a demand for stocks, and Consolidated California & Virginia was especially strong on the report of a promising strike of ore. Tuesday, however, brought a lull in the speculation and a decline in prices again, though there was still a good deal of buying of the North End stocks.

The decline continued on Wednesday, but on Thursday there was a reaction and prices became firmer again. Plenty of rumors were in circulation, but no actual news as to the new ore strikes was received. Upon the whole prices continued strong and the market closed firm. There were, however, only small lots of stock offered toward the end of the week. Dealers are waiting somewhat anxiously for the next official reports from the mines.

At the close Consolidated California & Virginia sold at $2.15@$2.20; Hale & Norcross, $1.20@$1.25; Ophir, $1.10@$1.15; Confidence, $1.25; Best & Belcher, 64@67c.; Savage, 49@50c.; Sierra Nevada, 48@50c. Standard Consolidated was in demand and sold up to $1.70.

The Pennsylvania Mining Company, of Grass Valley, has declared its fifth dividend, at the rate of 5c. per share, payable February 1st.

A special meeting of the stockholders of the Exchequer Mining Company has been called for February 4th for the purpose of deciding the best way to dispose of the capital stock now held in the company's treasury.

At the annual meeting of the Belcher Mining Company January 23d, the old management was re elected by a unanimous vote of 64,800 shares. The directors are James Newlands, W. G. Morrow, George D. Edwards, J. P. Martin and James New

lands, Jr. James Newlands was chosen president, W. G. Morrow vice-president, C. B. Perkins secretary and W. E. Sharon superintendent.

Special meetings of the Bodie Consolidated, the Bulwer Consolidated and the Mono mining companies have been called for February 16th for the purpose of authorizing the final dissolution of these companies, which now exist in name only, their property having been sold to the Standard Consolidated Mining Company.

The annual meeting of the Watt Blue Gravel Mining Company has been called for February 15th.

The Best & Belcher Mining Company has levied an assessment of 25c. per share.

British Columbia.

(From Our Special Correspondent.)

ROSSLAND, B. C., Jan. 28.

It is just the period for mischievous rumors, especially those which are intended to influence the local stock market, which continues to fluctuate. The reports have been busy with many fictitious sales and strikes, chief among which have been the sale of the Le Roi, but it has not materialized. The price fixed by these reports was $5,000,000. The management was wholly unconscious of this deal. The strike reported some days ago as having been made in the Iron Mask has been added to the long list of fabrications which have done so much to throw doubts on every report originating in the camp.

The formation of a Mining Exchange in Spokane, though meeting with some opposition here, is regarded in unprejudiced quarters as a step in the right direction. Trail Creek stocks form a specialty of this Board. The local brokers continue to sell a good many shares of favorite properties.

Up to the end of December, 1896, the Le Roi Mining Company had paid dividends amounting to $275,000 and the War Eagle $187,000, being a total of $472.000 for Trail Creek in 1896. The Slocan Star, which is in the Slocan District, declared $300,000, and the Cariboo, which is in the Yale-Cariboo District, yielded in dividends $112,000, making a total for Trail, Slocan and Yale-Kootenai District, of $874,000.

The following named companies in the Slocan District also declared dividends, but the exact amounts have not been furnished: Noble Five, Idaho, Alamo, Cumberland and Reco. The dividends declared by these five companies will increase the total to about $1,(00,000.

London. Jan. 16.

(From Our Special Correspondent.)

Little actual business has been done in the South African market during the week, though various events have caused considerable variation in quotations. Much depression has been caused by rumors of a new issue of shares by the Consolidated Gold Fields. The directors took pains to deny any intention of a new issue, and in some quarters their denial was accepted. There is, however, great likelihood that the company will raise further capital shortly in order to open up and develop some of their deep-level propositions. It is well known among those best qualified to judge that these deep levels will require enormous sums for development whether they ultimately pay or not, and London financiers much prefer to raise new capital on such occasions instead of paying for developments out of profits. And the cause for depression was the announcement of a much reduced dividend by the South African Gold Trust, but the market in these shares was sustained by the comparative largeness of the sum carried forward, though it must be said that the reason this profit was not distributed is that it has not yet been realized in cash. A third cause of depression was the announcement that Rand Mines, Limited, is about to issue debentures to the amount of £1,000,000 for the purposes of development. It is a fact, however, that quite one-half of the money raised will go to Wernher, Beit & Company to pay back loans advanced by this firm.

The West Australian market has been comparatively dull. The only source of encouragement to buyers has been the announcement of a return of 5,500 oz. from 500 tons at Hannan's Brownhill. This, however, has not gone far in getting the public in. New Zealands have been rather more prominent than during the past few weeks and Indians have continued very strong.

Americans are not much heard of. De Lamar's, however, have been unpleasantly prominent, owing to the almost forced sales of stock on the part of inside holders. Shares have been offered freely at 6s. 6d., but it is impossible to find if any have been disposed of or not.

A rumor has been persistently circulated that Messrs. Barnato & Robinson have arranged to raise a loan of £6,000,000 for the Transvaal government. The presumed use for this loan is the purchase of the Netherlands Railway and the dynamite monopoly. Mr. Robinson has denied the correctness of the rumor, but his language in doing so is so vague that one is inclined to believe that the report is in main correct, although the details may not be so. It is certain that President Kruger feels himself forced to make some concession in favor of the mines with regard to the dynamite monopoly, and also to do something to reduce the ruinous rates charged for transport by the Netherlands Railway. There are, however, considerable difficulties in passing such schemes through the Transvaal Parliament, so that some time may elapse before these desired reforms are consummated.

The West Australian market has been depressed by rumors and announcements that some of the leading companies have come to the end of their money. Issues of new shares are threatened and also some reconstructions. The depressing influence of this news has been partly counteracted by the publication of some excellent crushing returns from some of the more successful mines.

Paris. Jan. 24.

(From Our Special Correspondent.)

The mining stock market has been generally strong during the week, and even the Transvaal shares have shown little decline. There have been no marked fluctuations of any kind to be noted.

The foreign commerce of France for the full year is reported by the Ministry of Commerce as below:

	1895. Francs.	1896. Francs.
IMPORTS:		
Food	1,035,499,000	1,059,546,000
Raw Materials	2,100,920,000	2,154,758,000
Manufactures	583,480,000	622,843,000
Totals	3,719,899,000	3,837,147,000
EXPORTS:		
Food	591,004,000	639,503 000
Raw Materials	873,599 000	829,566,000
Manufactures	1,792,578,000	1,789,420,000
Postal Parcels	116,615,000	146,154,000
Total	3,373,756,000	3,404 643,000
Excess, exports	346,103,000	432,504,000

The Société des Mines d'Or d'Ouro-Fada is a company just formed here to operate gold mines in the province of Minas Geraes, in Brazil. The capital stock is small, 1,250,000 fr., and the par value is 5,000 fr., so that it will probably make little figure on the Bourse. The best known person in the new company is M. Mayoussier, of St. Gobain.

There has been a great deal said about the intention of Russia to resume specie payments, and there is little doubt that the Empire is really in earnest in this matter, the preliminary steps having been already taken. At the same time a great deal has been written and is current about the matter which is not correct. In the last number of *l'Economiste Français* M. Rafallovitch has an excellent article on this subject. Contracts and payments in gold are now legal in the Empire, and a decree has been issued establishing a fixed rate of exchange until January 1st, 1898. The old standard gold rouble is to be the equivalent of 1·50 credit or paper roubles. This is almost exactly the rate at which the paper rouble has ruled for three years past, during which there has been but little change. The new gold coinage has not been undertaken yet, but it is assumed that the new standard rouble will be of value equivalent to the paper rouble—that is, two-thirds of the old standard. The reserve of the Bank of Russia has been greatly strengthened by the transfer to it of a large amount of gold, nominally in payment of money which the government had borrowed from the Bank. It is not the intention to withdraw the paper roubles, but they will circulate with the gold coins. As subsidary coins the work has been begun of coining—on the new standard—pieces of 1 rouble, 50 and 25 kopeks; and for this purpose the government has a stock of silver valued at 175,000,000 fr., partly in bar silver and partly in the old silver rouble pieces. This is believed to be sufficient, and no more will be bought at present. The paper rouble is the equivalent of 2·50 fr., or about 50c. of your money, so that the new pieces will be, again in your money, equal to 50c., 25c. and 12½c. The ratio to gold will be not very far from the present commercial value of silver, about 30 to 1.

M. Babelon, long connected with the Mint, has published a most interesting work on the "Origin of Money." He is a high authority on coins and has given us a most learned and profound history. Unfortunately, he is not a statistician and while he is undoubtedly most correct when he writes of Greek and Egyptian money and of the French coins of the Merovingian age or of Louis XI., his data on modern coinage—at least as to amounts—are entirely at variance with all the best authorities. He seems also entirely lost as to the amount of precious metals under the Roman Empire, for instance when he intimates that it was greater than is now in existence.

I am charged by a number of my friends to congratulate you on your number of January 2d. Here, where we must depend on the slow movements of official bureaux, we can hardly understand how so admirable a presentation of the mineral production can be made at so early a date. AZOTE.

MEETINGS.

Battle Mountain Consolidated Gold Mining Company, at Victor, Colo., on February 23d, at 2 p. m.

Bloomington Mining Company, at 411 Walnut street, Philadelphia, Pa., on February 9th, at 12 m.

Bodie Consolidated Mining Company, at 310 Pine street, San Francisco, Cal., on February 16th, at 12 m.

Bulwer Consolidated Mining Company, at 310 Pine street, San Francisco, Cal., on February 16th, at 12.30 p. m.

Daly Mining Company, at 164 West Temple street, Salt Lake City, Utah, on February 15th, at 2 p. m.

Emerald Mining Company, at 505 Dooly Building, Salt Lake City, Utah, on February 16th, at 2 p. m.

Great Eastern Gold Mining and Milling Company, at 307 McCornick Building, Salt Lake City, Utah, on February 13th, at 2 p. m.

Mohawk Consolidated Mining and Milling Company, at room 65, Commercial Block, Salt Lake City, Utah, on March 1st, at 3 p. m.

Mono Gold Mining Company, at 310 Pine street, San Francisco, Cal., on February 16th, at 12.45 p. m.

Morgan Silver Mining Company, at Salt Lake City, Utah, on February 19th, at 8 p. m.

Princess Gold Mining Company, in the Bank Block, Colorado Springs, Colo., on February 24th, at 3 p. m.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.		Sale.		Amt
Alta Silver	Nev	54	Jan.	18	Feb.	8	.05
Anna Gold	S. D.	6	"	27	"	15	.002
Beaver Creek	Mont.		"	17	"	23	.02
*Best & Belcher	Nev	61	Mar.	2	Mar.	23	.25
Bogan Silver	Utah	4	Feb.	18	"	8	.15
Bullion	Nev	49	"	18	"	11	.10
Centennial	Mich.		"	2			.50
Central Eureka	Cal	4	Jan.	30	Feb.	23	.03
Confidence	"	1	Feb.	27	Mar.	20	.10
Eagle	"	1	Jan.	23	Feb.	15	.05
East Gold'n Gate	Utah		"	22	"	15	.00½
Eureka Con	Cal	7	Feb.	26	Mar.	20	.05
Eureka Con.	Nev	14	"	23	"	15	.25
Gould & Curry	"	80	Jan.	19	Feb.	9	.15
Gray Eagle	Cal		"	30	"	23	.05
Horseshoe Bar Con	"	6	Feb.	6	"	27	.20
*Indep'd't-Tes'ra	Utah						.02
Jones	"		Feb.	16	Mar.	11	.00¼
Julia Con	Nev	28	"	26	"	19	.05
Jupiter Gravel	Cal	1	Mar.	3	"	23	1.00
Larkin	"		Feb.	15	"	15	.05
Lucky Bill	Utah		"	23	"	13	.01½
*Mountaineer	Cal	19	"	11	Feb.	27	.04
Ridge Copper	Mich.		Feb.	16			1.00
Savage	Nev	91	Jan.	26	Feb.	15	.20
Sevier	Utah		Feb.	11	"	27	.05
Silver King	Ariz.	16	Mar.	1	Mar.	29	.25
Teresa	Mex.	17	Feb.	5	Feb.	23	.05
Tetro	Utah	4	Jan.	30	"	20	.01
Utah Con	Nev.	24	Feb.	17	Mar.	8	.05

*New assessment.

DIVIDENDS.

NAME OF COMPANY.	Current Dividends. Date.	Am't.	Paid since Jan. 1, 1897.	Total to date.
*Alaska-Mexican			$18,000	$191,031
*Alaska-Treadwell			75,000	3,100,000
*Anchoria-Leland			6 000	36,000
Atlantic Copper	Feb. 10	40,000	40,000	740,000
Boston & Montana	" 26	450,000	450,000	5,375,000
*Bullion Beck			20,000	1,967,000
Calumet & Hecla	Feb.10	1,500,000	1,500,000	48,350,000
*Centennial Eureka			30 000	1,890,000
*Coronas			3,000	8,000
*Della S			10,900	60,000
*Elkton Con			25,000	191,960
*Florence			3,606	118,096
*Galena			5,000	71,000
Gold Coin	Feb. 1	20,000	15,000	120,000
*Hecla Con			15,000	2,160,000
*Homestake			31,250	6,118,750
Hope	Feb. 1	10,000	10,000	662,252
*Last Chance			20,000	40,000
*Le Roi			25,000	275,000
*Mercur			25,000	600,000
*Mont. Ore Pur. Co			40,000	520,000
*Morning Star			14,400	464,400
*Napa Con			10,000	820,000
*N. Y. & Honduras Rosario	Feb. 15	15,000	30,000	705,000
*Ontario			15,000	13,370,000
Osceola	Feb. 1	50,000	50,000	2,127,500
*Portland			30,000	893,000
Quincy	Feb. 15	400,000	400,000	9,070,000
*Sacramento			5,000	12,000
*Silver King			37,500	900,000
*South Swansea			7,500	15,000
*Swansea			5,000	26,500
Totals		$2,485,000	$2,976,256	$100,992,489

* January dividend paid.

NOTE.—This table does not give all the dividends paid by mining companies, as it is impossible to obtain a complete list of dividends declared. Many companies are close corporations and refuse to give the information. Readers of the *Engineering and Mining Journal* will confer a favor on the publishers if they will notify the *Journal* of any errors or omissions in the above table.

STOCK QUOTATIONS.

NEW YORK.*

NAME OF COMPANY.	Location.	Par val.	Jan. 30. H.	Jan. 30. L.	Feb. 1 H.	Feb. 1 L.	Feb. 2. H.	Feb. 2. L.	Feb. 3 H.	Feb. 3 L.	Feb. 4. H.	Feb. 4. L.	Feb. 5. H.	Feb. 5. L.	Sales
Alamo	Colo.	1							.05						1,000
Anaconda	"	1			.72	.70	.72½		.73	.72½			.72		2,000
Anchoria-Lel'd.	"	1													
Annetta					15⅛	14¼			.17	.16¾			.20	.16¾	18,100
Argentum-Jun.	Mont.	5			.42	.41¾	.41	.4⅛	.43	.40¾			.38		2,100
Belcher	Nev.	100													
Best & Belcher	"	100													200
Bodie	Cal.	100			.78										500
Brunswick	"	1							.17		.18		.18		
Capital	Colo	50													
Chrysolite	Colo.	25													
Comstock T.	Nev.	100													
Con. Cal. & Va	"	100	2.30				2.20								800
Con. Imperial	"	100													
Creede & C. C.	Colo	1					.07		.06⅛						3,600
Cripple Cr. Con.	"	1	.12		.13		.12⅜		.12⅛		.13		.13		4,800
Crescent	Utah.	25													
Crœsus	Colo.	1													
Crown Point	Nev.	100					.35								850
Dalton & Lark	Utah.	1													
Daly	"	20													
Eagle	Colo.	1													
Elkton	"	1			1.30	1.27	1.30		1.34	1.33			1.35	1 30	1,400
Fanny B	"	1											01¼	.06⅛	1,200
Favorite	Colo.	1													
Garfield Grouse	"	1					.09						.08		2,000
Geyser	Utah	5													
Gold Cliff	Colo.	1					.35¾		.36	.35					4,100
Gold Coin	"	5													
Gold Explor	"	1											.11¾		1,000
Gold & Globe	"	1													
Golden Fleece	"	1			.81⅛		.82	.81¼	.83⅛				.82⅛		2,300
Gould & Curry	Nev.	100													
Hale & Norcross	"	100									1 05				200
Homestake	S. Dak	100													
Horn Silver	Utah.	25													
Iron Silver	Colo.	20													
Isabella	"	1			.49		.52						.50		400
Jack Pot	"	1							.07¼				07½		2,000
Japan					2.60	2.52									600
Jefferson	Co'o.	1			.13½	12	.14⅛		.15				.14⅛		2,600
King & Pemb.	Ont	10													
Lacrosse	Colo.	10									.08				200
Leadville Con.	"	10													
Little Chief	"	50											.10		100
Mercur	Utah.	25													
Mexican	Nev.	100	.55												200
Mollie Gibson	Colo	5					.51						.47¾		200
Mono	Cal	100							.25						100
Moulton	Mont.	5							.20						25
Mt. Rosa	"	1	.12		.13		.13		.12		.11				3,800
New Haven															2,000
Old Dominion	Ariz.	25													
Ontario	Utah.	100													300
Ophir	Nev	100											1 00		
People's	Colo	1													
Pharmacist	Ariz	1	.14		.14				.15		.15		.13		2,300
Phœnix Con	"	100	.05												500
Portland	Colo.	1	1.25						1.27						200
Potosi	Nev.	100													
Quicksilver	Cal	100													
" pref.	"	100													
Red Bird	Colo.				.09		.09½		.10½	.10			.10½	10½	13,500
Red Mount	"	5			.25½	.24½	.26	.25	.26½	.25½			.27	.25½	8,100
Russell	N. C.				.20¾	.19½	.2 ⅜	.20½	.23⅛	.20			.22⅜	.20	7,800
Savage	Nev	100											.50		200
Sierra Nevada	"	100													
Sm. Hopes Con.	Colo.	20													
Specimen	"	1													
Standard Con	Cal.	100	1.75												200
Syndicate	"	100													
Union	Colo.						.26½		.26						400
Union Con	Nev.	100													
Utah Con	"	100													
Victor	Colo.	5													
Work	"	1							.09¼						1,000
Yellow Jacket	Nev.	100											.25		200

*Official quotations Consolidated Exch. Stock Exch. and New York Mining Exch. Sales are those made on the three boards. Total shares sold, 92,825.

INDUSTRIAL, COAL AND COAL RAILROAD.*

NAME OF COMPANY.	Par value.	Jan. 30. H.	Jan. 30. L.	Feb. 1 H.	Feb. 1 L.	Feb 2. H.	Feb 2. L.	Feb. 3. H.	Feb. 3. L.	Feb. 4. H.	Feb. 4. L.	Feb. 5. H.	Feb. 5. L.	Sales
Balt. & Ohio	100					16	15⅝	15⅝	15½	15¼				1,000
Ches. & Ohio	100	18¼	17⅜	18⅝	17⅜	17⅜		17⅜		17⅜	17⅛	17⅛		3,360
Col.C.& I.Dev	100													
Col. Fuel & I.	100			26¼		26¼								135
Col.,H.V.&Tol	100	11⅜	11	11⅛	10¾	10⅝	9⅝	10	9¾	10	9¾	9⅞	9¾	4,600
do. pref.	100							49						70
Col. & H.Coal	100													
Del. & Hud. C	100	108	107¾	108¼	07⅜	108	107¼	108⅝	107¼	108	107¾	108¼	107¾	9,295
Del., L. & W.	50	154		152⅜		152⅝	151⅝	152¾	151¾	152¼	153	152		8,324
General Elec.	100	35⅞	35	36⅛	35⅛	36¼	35½	36	35⅝	36	35⅝	35¾	35¼	19,631
Lake Erie&W	100	16⅜	16								16⅛			400
do. pref.	100							69½		67				34
Morris&Essex	100			165										100
Nat'l Lead	100			25⅛	25¼	24⅝		24		23¾	23⅜	23⅝	23½	2,501
do. pref.	100			91⅝	91	91		90¾	90	89½	89¾			686
N. J. Central	100	101	100¼	10 ¾		100⅝	100	100¼		100	99	99¼	98¼	2,630
N. Y.,L.E.&W	100													
do. pref.	100													
N.Y.,Ont.&W.	100	15¼	15⅛	15⅜						14⅜				220
N.Y.,Susq.&W	100			9		8¾								100
do. pref.	100			25¼	25¼	24⅝		25	24⅝	24⅝	24⅛	24⅛		800
Norfolk & W.	50													
do. pref.	50			18¾										200
Phila. & Read.	50	26⅜	26¼	27	26⅛	26⅜	26¼	26¾	26⅛	26⅝	24¼	26⅛	26⅛	5,300
Tenn. C. & I.	100	30⅝	29¾	3 ⅜	30⅛	30⅛	29⅝	30	29⅝	30	29⅜	29⅜	29⅛	9,675
do. pref.	100													
Wheel. & L. E	100			2¼		2⅜	2⅛	2½		2⅜	2¼	2½		2,450
do. pref.	100					10½		10½		9⅝				200

* Official quotations N. Y. Stock Exchange. Total shares sold, 66,762.

SAN FRANCISCO, CAL.*

NAME OF COMPANY.	Location.	Par. value.	Jan. 29	Jan. 30.	Feb. 1.	Feb. 2.	Feb. 3.	Feb 4
Alta	Nev.	100	.09	.07	08	.08	08	.09
Belcher	"	100	.35	.35	33	.30	.30	.31
Belle Isle	"	100						
Best & Belcher	"	100	.68	.69	.65	.64	.67	.71
Choliar	"	100	.96	1.00	.93	.90	.94	.98
Con. California & Virginia	"	100	2.20		2.10	2.10	2.15	2.35
Crown Point	"	100	.35	.36	.34	.32	.32	.31
Gould & Curry	"	100	.50	.50	.47	.46	.49	.51
Hale & Norcross	"	100	1.20	1 20	1.20	1.15	1.15	1 15
Mexican	"	100	.48	.49	.45	.43	.45	.45
Ophir	Nev.	100	1 10	1.10	1.00	.98	1.00	1.00
Potosi	"	100	.57	.56	.53	.50	.51	.53
Savage	"	100	.49	.50	.48	.49	.49	.49
Sierra Nevada	"	100	.49	.48	.47	.43	.43	.46
Standard	Cal.	100	1.70	1.70	1.65	1.60	1.65	
Union Con.	Nev.	100	.44	.42	.37	.38	.38	.43
Utah	"	100	.14	.04	.04	.05	.05	.04
Yellow Jacket	"	100	1.0	.35	.36	.35	.31	.32

*Official telegraphic quotations, San Francisco Stock Exchange.

BALTIMORE, MD.* Week ending Jan. 29.

NAME OF COMPANY.	Location.	Par value	Bid.	Ask.	NAME OF COMPANY.	Location.	Par value.	Bid.	Ask.
Balt. M. & S.	N. C.	5			Howard C.&C	Md.	5		
Conrad Hill	"	10			Lake Chrome	"	5		
Con. Coal	Md.	100	35		Ore Knob	"	10		
G. Cr'k Coal	"	100	108	110	Silver Valley	N. C.	5		

*Official quotations Baltimore Stock Exchange.

BOSTON, MASS.*

NAME OF COMPANY.	Location.	Par val.	Jan. 29. H.	Jan. 29. L.	Jan. 30. H.	Jan. 30. L.	Feb. 1. H.	Feb. 1. L.	Feb. 2. H.	Feb. 2. L.	Feb 3 H.	Feb 3 L.	Feb. 4. H.	Feb. 4. L.	Sales.
Alloues	Mich.	25			.85		.90	85	1.00						1,265
Arnold	"	25	3.00		3.50	3.25	3 75	3.18	3 50	3.25			3.13		5,573
Atlantic		25	25.00						$24		25.00	24 00	24.00		382
Bost. & C. C.	Colo.	1			17¾										100
Bost. & Mont.	Mont.	25	109¾	107½	111¼	108⅝	112¼	110½	112	109⅝	111¾	109	111⅝	109¾	28,962
Butte & Bost	"	25	12 38	11.50	12 75	12.00			13.25	12 00	12 25	11.00	12.50	11 63	49,788
Cal. & Hecla	Mich.	25	360				36)	359			360		360		78
Centennial	"	25	6.00	5.50	6.50	5.88	7 00	6.50	7.00	6.00	6.50	6.00	6.75	6.00	12,346
Dominion Coal.	N. S.	100	8 50				9 00	8 88	9.13	9.00	9.00	8 75	9.00	8.88	920
" pref.	"	100											83.00		15
Franklin	Mich.	25	13.00				13.00		12 50		12 50				177
Gold Coin	Colo.	1	3.75	3 63	3 75		3.63	3 50	3.63	3 50	3.75	3.50	3.63	3.50	4,505
Illinois Steel	Ill.	100	37.00	36.00					38.00	37.00	37.00		37.00		455
Kearsarge	Mich.	25	19.50	19 25	19.50	19.50	20.25	19 75	19 50		19.25	19.00	19.25	18.50	4,456
Lake Sup. Iron.	"	25													
Merced	Cal.	15	10.00	9.00	10.50	10 25	11.00	10.38	10.25	9.25	9.50	8.50	9.50	8.50	7,795
Minnesota (Ir.)	Minn.	100													
Napa	Cal.	7													
National	Mich.	25													
Old Dominion	Ariz	2	18.75	18.00	18.75	18.38	19.50	18.75	19.00	18 00	18.63	18.00	18.75	17.88	12,658
Osceola	Mich.	25	34.5	34 00	34.50	34.00	34.75	34.00	33.50	33 00	33.50	32.50	33 50	33 25	1,902
Pioneer	Cal.	10	6.00	5.88	5 75	5.50	6.00	5.75	5.75	5.50	5.75		5.50	4 75	3,456
Pontiac	Mich.	25													
Quincy	"	25	116¼				117	116½	117	116½			116		129
do. scrip	"		106½	106	106		106½	105	106				107		124
Santa Rosa	Cal.	10													
San. Ysabel (G.)	"	5	14 00	12.25	14.50	14.00	14.75	14 00	13 75		13.75		13.13		6,198
Tamarack	Mich	25	121½	118	120	119½	120¼	120	121	109½	119	110½	119	116	1,420
Tamarack, Jr.	"	25			18 00		18.50	18.25	18.50	18.00			17 50	17.00	730
Tecumseh		25	3.25				3.62	3.13	3 25		3.00				550
Westingh.E.&M	Pa.	50	24.63	24.00	25.00	24.25	24.50		25.25	25.00					702
do. pref.	"	50			50.75		50.75	50 25	50.75	50.00	50.13		50.00		349
do. scrip	"														
Wolverine	Mich.	25	10.50	10.38	10 63	10.38	10.63	10.50	11.00	10 13	10.50	10.13	10.38	10.00	4,566

*Official quotations Boston Stock Exchange. §Ex-dividend. Total sales, 149,175.

COLORADO SPRINGS, COLO.

NAME OF COMPANY.	Par val	Jan. 25. H.	Jan. 25. L.	Jan. 26. H.	Jan. 26. L.	Jan. 27. H.	Jan. 27. L.	Jan. 28. H.	Jan. 28. L.	Jan. 29 H.	Jan. 29 L.	Jan. 30. H.	Jan. 30. L.	Sales.
Ajax	$1													
Alamo	1	.05				05				.05		.05½	.05⅛	7,500
Am'ric'n C	1													
Anaconda	5	.82¼	.79	.78⅛	.77½					.72	70	71		4,500
Aola	1													
Arg'ntumJ	2	.43		.40¾	.33⅞	.40½	.40⅜	.41½	.40½	.41⅛	.40½	.41⅜	.41	9 150
Bangkok	1													
Bankers	1													
Banner	1											.02⅜		2,000
Ben Hur	1													
Blue Bell	1													
Bob Lee	1	.01				.01								3,000
Bost. & C.C.	1													
Buckhorn	1													
Colo.C.&M.	1													
Columbine	1													
Copper M	1													
Cr. & C. C.	1		.05¾					.05¾		.06⅜	.05⅜	.06½	.06½	81,500
C. C. Con.	1	.12½		.12		.11⅜	.11	1.9⅜	.11⅛	.11⅛		.12½		12,000
Cr.Cr.Exp.	1													
Crœsus	1			.008		.007⅜				.008		.008	.007⅜	12,000
Dante	1													
Des Moines	1							.02¼	.02	.02¾				13,000
Enterprise	1													
Fanny R	1					.07⅛	07⅜	.07⅝		.07½				5,500
Favorite	1			.05⅜		.05⅜		.05⅜						4,500
Franklin	1	.007		.007				.006						3,000
Garfield-G.	1													
Gold. Age	1													
Gold. E'g'e	1													
Gold Fi'ce	1									.83		.83	.81⅜	300
Gold & Gl.	1			.11								.18¾		1,000
Gold King	1													
Gold Stand	1													
Gould	1													
Grotte	1													
Henrietta	1													
Humboldt	1													
Ida May	1													
Ingham,C.	⅛					.14⅜								500
Iron Clad	1													
Isabella	1	.48	.47¾	.47⅜	.46	.47	.46	.47	.46¾	.48¾	.47⅜	.48¾	.47¾	59,800
do.stamp.	1		.43¾	.48¾	.46	.45⅛	.46¾	.46¾						15,000
Jack Pot	1	.07½	.07	.07	.06⅜	.07⅜	06⅞	.07⅝	.07⅛	.07⅛	.07¼	.07⅜		92,000
Jefferson	1													
Keystone	1													
Ladessa	1													
L'nc'ln B'y	1													
LottieGib	1													
Marion	1											.006		1 000
Matoa	1													
Mollie G.	5	.53½	.52½	50	.49	.50	.49	.52⅜	.51½	.53½	.50½	.51	.51½	22,250
Monarch	1													
Mt. Rosa	1			.09		.09½	.09¼	.10	.09¼	.10¼	.09⅜	.10⅝		11,500
Mutual	1													
Nugget	1													
Ophir	1													
Oriole	1													
Orphan B.	1													
Pappoose	1													
Pharmacist	1	.12½	.11⅝	.11⅝	.11	.12½	.10¾	.12¾	.12½	.12½	.12⅝	13	.12½	166,500
Portland	1				1.31				1.27½	1.28½	1.32	1.26		8,300
Princess	1													
Reno	1													
Sacrameto	1													
Silver St	1													
Specimen	1			.07				.07						3,000
Sq'w Mt.T.	1													
Temonj	1													
Trachyte	1	.02½		.02½		.02¾		.02¾	.02¾	.02⅝	.02¼	.02⅜		14,500
Union	1	.27	.26½	.26	.24¼	.24½	.24	.25	.24⅜	.25⅜	.25	.25⅜	.25¼	79,650
Virginia M.	1													
Work	1			.08	.07¾	.08				.08	07¾	.05⅝	.08⅝	12,500

Official quotations. Total shares sold listed, 647,150; unlisted. 949,013

CLEVELAND.

NAME OF COMPANY.	Par value.	Feb. 3. Bid.	Feb. 3. Ask.	NAME OF COMPANY.	Par value	Feb. 3. Bid.	Feb. 3. Ask.
Aurora	$25		$8	Lake Superior	$ 5		$82
Chandler	25	$35	40	Minnesota	100		
Cleveland-Cliffs Iron	100		45	Pittsburg & L'ke Angeline	$80		
Jackson	25		70	Republic	25	15	20

BRITISH COLUMBIA. Week ending Jan. 30.

NAME.	Selling price.	NAME	Selling price.	NAME.	Selling price.
Bound'y Creek:		**Trail C'k** (con.):		**Trail C'k** (con.):	
Old Iron Sides	$0.15	California	$0.15	Little Darling	$0.05
C'p McKenney:		Colonna	.20	Mabel	.05
Caribou M.& S.Co.	.50	Commander	.20	Mayflower	.15
Ainsworth & Nelson Dis.:		Deer Park	.24	Monita	15
Delia M. & M. Co.	.14	Eureka Con	.06	Monte Cristo	.17
Colville Res.:		Evening Star	.12	Morning Star	.07
Briton	.08	Georgia	.15	Mug Wump	
Fidelity G.& C.Co.	.10	Gertrude	.10	Nest Egg	.10
Joe T. Gold M. Co.	.05	Good Hope	.05	Northern Bell	.15
Mountain View	.06	Great Western	.15	O. K	.30
Idaho District:		Hattie Brown	.01½	Orphan Bell	
Daisy Group	.10	Helen	.07	Ottawa	
Oro Pinar Placer	.06	High Ore	.05	Palo Alto	.08
Slocan Dis.:		Homestake	.05	Phœnix	.08
Idler	.07½	Imperial	.05	Poorman	.08
Noble Five Con	.60	Iron Mask	52	R. E. Lee	.12
Slocan Star	2.35	Iron Coat	.12	Red Mt View	.10
Wonderful Group	.10	Ivanhoe	.05	Rossland Red Mt	.25
Trail Creek:		Josie	.55	St. Elmo	.10
Alberta	.10	Jumbo	.57	Silver Bell	.10
Josie Mac	.10	Kohnor	.05	Silverine	.10
Big Three	.10	Kootenay Col	.10	So. Cross & Wolver. C.	.15
Blue Bird	.10	Kootenay, London	.10	St Paul	.10
Butte Gold-Copper	.03	Le Roi	7.50	War Eagle Con	
British Con.GoldFields	.40	Lily May	.20	West Le Roi	.25
Caledonia Con	.10			White Bear	.10

Par val.: Hall Mines and Le Roi, $5; Slocan Star, $10.; other stocks, $1.

LONDON. Jan. 22.

NAME OF COMPANY.	Country.	Product.	Capital stock.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
N'th Americans:				£ s. d.	s.d.		£ s. d.	£ s. d.
▲Alaska-Mexican	Alaska	Gold	£200,000	1 0 0	0 4.8	Oct. 1896	1 5 0	1 10 0
†Alaska-Treadwell	"	"	1,000,000	5 0 0	1 6	" "	4 2 6	4 7 6
De Lamar	Idaho	Gold & silver	400,000	1 0 0	1 0	Nov., "	6 6	7 6
Hall Mines	British Col	Cop. & Silver	250,000	1 0 0			1 8 9	1 11 3
Montana	Montana	Gold & silver	660,000	1 0 0	0 3	June, 1896	3 9	4 3
Palmarejo	Mexico	" "	800,000	1 0 0			1 0	1 6
Pinos Altos	"	" "	100,000	1 0 0			1 3	3 9
Plumas-Eureka	California	Gold	281,250	2 0 0	0 6	Oct., 1896	2 6	7 6
Richmond	Nevada	G'ld, sil., le'd	270,000	5 0 0	1 0	Dec., "	12 6	17 6
Sierra Buttes	California	Gold	245,000	2 0 0	0 6	Apr., "	2 6	7 6
Springdale	Colorado	"	200,000		0 2	Sept., 1894	3	9
S'th Americans:								
Colomb. Hydra'lic	Colombia	Gold	75,000	1 0 0	1 0	July, 1895	7 6	10 0
Frontino & Bolivia	"	"	140,000	1 0 0	1 3	Dec., 1896	1 11 3	1 13 9
St. John del Rey	Brazil	"	562,000	1 0 0	xn	Jan., 1895	13 9	16 3
Copper:								
Anaconda	Montana	Cop. & Sil.	6,000,000	5 0 0	5 1¾	Nov., 1896	5 18 9	6 1 3
Cape Copper	So. Africa	Copper	600,000	2 0 0	3 0	Dec. "	2 10 0	2 15 0
Copiapo	Chile	"	200,000	2 0 0	1 6	" "	2 0 0	2 5 0
Mason & Barry	Portugal	Cop. & sulph	1,050,000	4 0 0	£1 cp	Dec. "	3 5 0	3 10 0
Rio Tinto	Spain	Copper	3,250,000	10 0 0	18 0	Nov., "	27 0 0	27 2 6
Tharsis	"	Sulpr & cop'r	1,250,000	2 0 0	4 0	April, "	5 18 9	6 2 6
Australians:								
Bayley's Reward	W.Au't'lia	Gold	480,000	1 0 0	0 4	Dec., 1894	2 9	3 3
‡Broken Hill Prop.	N.S. Wales	Silver	960,000	1 0 0	1 0	" 1896	2 10 0	2 12 6
‡Mt. Morgan Gold	Qu'ns'land	Gold	1,000,000	1 0 0	0 6	Jan., 1897	3 7 6	3 12 6
South Africans:								
British S.Africa Co	So. Africa	Lands & Ex.	2,500,000	1 0 0	xn	Jan "	2 7 6	2 10 0
†City & Suburban	Transvaal	Gold	85,000	4 0 0	2 0	Oct., 1896	3 15 0	4 0 0
Crown Reef	"	"	120,000	1 0 0	12 0	" "	10 5 0	10 10 0
‡De Beers	CapeCol'y	Diamonds	3,990,000	5 0 0	22 0	Jan., 1897	29 0 0	29 2 6
†Ferreira	Transvaal	Gold	90,000	1 0 0	£1	Aug., 1896	18 10 0	19 0 0
Geldenhuis Est	"	"	200,000	1 0 0	2 6	Oct "	2 18 9	3 2 6
†Henry Nourse	Witw'sr'd	"	100,000	1 0 0			6 5 0	6 10 0
†Heriots (New)	"	"	115,000	1 0 0	4 0	Oct., 1896	7 10 0	7 15 0
Jagersfontein	Orange F.S	Diamonds	1,000,000	5 0 0	6 0	Sept. "	9 7 6	9 12 6
†Langlaagte Estate	Transvaal	Gold	500,000	1 0 0	3 0	July, "	4 2 6	4 7 6
Primrose (New)	"	"	280,000	1 0 0	xrts.	Sept. "	3 10 0	3 15 0
†Robinson	"	"	2,750,000	5 0 0	5 0	July, "	8 5 0	8 10 0
Sheba	"	"	850,000	1 0 0	1 0	Dec "	2 3 9	2 6 3
Sim. & Jack (New)	"	"	5,400,000	5 0 0			4 7 6	4 12 6
Wemmer	Witw'sr'd	"	55,000	1 0 0	10 0	Apr., 1895	7 5 0	7 10 0

† Dividend pending. ‡ Ex-dividend.

PARIS. Week ending Jan. 15.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	100.00	1,890.00	1,995.00
" " Firminy	"	" "	3,000,000	500	35.00	1,8 0.00	1,830.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	799.00	805.00
" " la Marine	"	" "	30,000,000	500	37.50	1,000.00	1,101.00
" " Longwy	"	" "		500	35.00	897.50	90 .00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	25.00	95 50	95.50
Anzin	France	Coal			170.00	4,700.00	4,910.00
Boleo	Lower Cal.	Copper		500	65.00	1,315.00	1,525.00
Briansk	Russia	Coal & Iron				1,100.00	1,360.00
Bruay	France	Coal	3,000,000	400	700.00	25,5 0.00	26,000.00
Callao	Venezuela	Gold	32,200,000	125		4.50	3.75
Cape Copper	S. Africa	Copper		50	1.50	62.50	63.50
Champ d'Or	"	Gold		25		25 50	25.00
Courrieres	France	Coal	600,000	300	160.00	1,575.00	1,670.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	758.00	762.50
Dombrowa	Russia	Coal		500		560.00	565.00
Dynamite Centrale	France	Explosives		500	25.00	517.00	540.00
Fraser River	Brit. Col'mb	Gold				32.50	36.25
Huanchaca	Bolivia	Silver		125	5.00	70.00	70.50
Huta-Bankowa	Russia	Iron & steel				3,160.00	3,510.00
Langlaagte Estates	S. Africa	Gold	11,750,000	25	11.25	108.00	109.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	669.00	685.00
Lautaro	Chile	Nitrates		125		148.00	153.00
Malfidano	Italy	Zinc	12,500,000	500	40 00	1,060.00	1,074.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	12.00	643.00	690.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	755.00	775.00
Nickel	N. Caled'nia	Nickel	14,720,000	500	80.00	195.00	310.00
Paccha-Jazpampa	Chile					15.00	15.00
Penarroya	Spain	Coal, etc		500	52.50	1,670.00	1,675.00
Rebecca	Colo'do, U.S.	Gold				7.00	7.25
Rio Tinto	Spain	Copper	81,250,000	250	27.65	631.00	670.50
Robinson	S. Africa	Gold		125	12.50	216.50	218 00
Saint Elie	Fr. Guiana	"	4,000,000	25		18.50	18.50
Salines de l'Est	France	Salt		500	27.00	300.00	340.00
Sels Gem. de la Rus. Mer	Russia	" etc				595.00	630.00
Tharsis	Spain	Copper		50	8.75	16 .50	17.00
Vielle Montagne	Belgium	Zinc	9,000,000	80	20.00	537.00	535.00

MEXICO. Week ending Jan. 28.

NAME OF COMPANY.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo	9,600	$0.7		$25	$30
Angustias	Guanajuato	2,400	10.00		500	490
Arevalo y Anexas	Hidalgo		10.00		220	200
Asturiana y Anexas	Zacatecas	2,500	10.00		250	200
Bartolome de Medina	Hidalgo	2,000	3.50		150	100
Carmen	"	1,100	7.75		350	400
Castellana y San Ram	Tepic	2,448	3 00		125	100
Cerro Colorado	Chihuahua	15,000		$1.00	10	10
Cinco Senores y An	Guanajuato	2,000	25.00		830	980
Concepcion y Anexas	S. Luis Potosi	2,700			180	100
El Oro	Guanajuato	500			80	60
Guadalupe	"	10,000	2.00		200	180
Luz de Maravillas	Hidalgo	1,100			120	150
Pabellon	"	1,000	27.89		180	200
Purisima de los Com.	Zacatecas	2,400			10	5
Real del Monte	Hidalgo	2,554	10.00		1,100	1,080
Rosario y Anexas	Durango	4,800			50	60
San Francisco	Hidalgo	2,000	3.00		290	275
S. Ped. Chalchihuites	"	1,000	2.00		100	80
San Rafael y Anexas	"	1,200	20.00		950	930
do. free stock	"	1,200	14.00		450	400
Sta. Maria de la Paz	S. Luis Potosi	2,400			190	325
Soledad	Hidalgo	960	7.50		450	400
Sorpresa	"	960	5.00		250	300
Trinidad	Guanajuato	2,000			60	50
Tlauzingo	Puebla	2,400			30	40
Union	Hidalgo	2,000	8.00		300	350
Zaragoza	"	1,100			15	15
Zomelahuacan (gold)	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	30	40

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.* Dec. 19.

NAME OF COMPANY.	Capital.	Share value Nominal	Share value Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	0½ per cent.	$29	$30	$29¾
Caracoles	315,000	100	100	5 "	30	30	30
Descub. de Huantajaya	1,000,000	100	100	3 "			
Huanchaca de Bolivia	8,000,000	25	25	4 "	43	43½	43
Oruro	800,000	200	200		330	330	330
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.			
Todos Santos	2,000,000	100	100	1 "	16	17	16
Nitrate Cos:							
Agua Santa	3,000,000	50	50	4 "	150	151	150
Autofagasta	2,000,000	200	200	5 "	150	151	150
Union	3,000,000	200	500		50	52	50

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.* Jan. 14.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad	China	45,000	$5	$5	Oct., 1894	$0.25	Taels 1.90
Punjom Mg. Co., Ltd.	"	60,000	4	3.75			" 8.76
do. pref	"	30,000	1	1			" 2.85
Raub'an G.Mg. Co.	"	200,000	£1	13s. 10d.	Dec., 1893	0.21	" 6 57
Sheridan Con.Mg. Co.	Colorado, U.S	20,000	Taels 100	Taels 100			" 4.00

* Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.*

NAME OF COMPANY.†	Par val.	Jan 25. B.	Jan 25. A.	Jan. 26. B.	Jan. 26. A.	Jan. 27. B	Jan. 27. A.	Jan. 28 B.	Jan. 28 A.	Jan 29. B.	Jan 29. A.	Jan. 30. B.	Jan. 30. A.	Sales.
L'd Mines														
Anaconda	$5	.78	.80	.76	.76¾	.73	.73½	.70	.73½	.71	.71¾	.71	.72½	10,500
Bankers	1	.09	.10	.08½	.09¾	.09¾	.09¾	.09¼	.09¾	.09¼	.09¾	.09¼	.10	5 000
Gar.-Grouse	1	.08	.09¾	.08¾	.09¾	.08	.09	.08¾	.09¼	.09	.09½	.09	.09¾	7,000
Gold. Fleece	1	.80	1.00	.75	.90	.81	.85			.75	.88	.85		200
Insley M. & M	1	.006	0.08½	.006	.007	.005	.007½	.005½	.006¾			.0 5	.005½	3, 00
Iron Clad	1	.07	.07¾	.06¾	.07¾	.06¾	.07½	.06¾	.07¼	.06¾	.07½	.06¾	.07¾	1,000
Isabella	1	.47¾	.48	.46	.47	.45½	.46¾	.47½	.47¾	.47¾	.48	.48	.49	134,0 0
Jefferson	1	.12½	.13¾	.12¾	.13	.12½	.14½	.11		.12½	.15	.13	.14¾	1,000
New Zeal'd	1	.03	.04¾	.03½	.05			.04¾	.04¾	.04¾	.05	.14¾	.04¾	3,000
List. Cr.														
Addie C	1	.005		.006	.008	.007				.007	.008	.007	.008	1,900
Annapolis	1			.001¼		.001				.001		.001½		1,000
Aola	1	.01½	.01¾	.01½	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	4,0 0
Big Johnny	1		.002¾	.02¾		0 2½		.0 3	.002	0 3¾		.03		1,000
Blue Jay	1	.001¾	.002	.001¾	.001¾	.001¾	.003¾	.001¼	.001¾	.001¼	.002	.001¾	.003¾	31,000
Cannon Ball	1	.004		.004	.004¾	0 4	.04¾	.004		.004	.004¾	.004	.005	15,0 0
C C. Imp.	1	.002		.002		0 2½		.001½	.001¾	00 3¼	.003	.001½	002	74,0 0
Defend'r	1			.006	.0 6¾	.006¾	.006¾	.006½	.007	.0 6¾	.007¾			5,000
Dictator	1			.02¼	.00 ½	.002¾	.002¾	.002¾	.002¾	0 2	.002¾	0 2¾	.002¾	28,000
Dixie	1	.001	.001¾	.00¾	001	.0 3¾	.001¾						.001¾	58,000
Eclipse	1		.003¾	.003	.0 3¾	.003	.004¾	.003	.003¾	.002½	.004	.003	.004	12,000
Finance	1	.007	.01	.0 8¾	.011	0.8	.009¾	.007¾	.009¾	.007¾	.010	.007¾	011	1.0 0
Gene Field	1	.002	.002¾	.002¾	.003½	.002	.0 2¾	.002	.002¾	.002	.002¾	.002	.002¾	12,000
Gold Field	1	.002	.002¾	0 3	.0 3¾	.003	.003¾	.0 3	.003¾	.003	.003¾	.003	.003¾	4,000
Gold. Hope	1													
Gold Queen	1	0 01	.001¾	.001	.001	.003¾	.01¾	0 3¾	.001¾	.03¾	.001¾	.01	.001¾	3,000
Gregory	1	003	.003½	.0 3	..	.002¾	0 3	.002½	0 2¾	.0 2½	.002¾	.002¾	.0 3	18,000
Hecla	1													
Henrietta	1	.007½	.007¾	.006½	.0 6¾	.006	0 7	.006½	.007	.006½	.007	.006½	.0 8	1,000
Illinois	1	.007½	00	.009	.01	.008¾	.0 9	.009	.009¾	.009	.009¾	.008¾	.009½	5,000
Linc. Boy	1		.001	.00¾	.001	.00¾	.001	.0 3¾	.001	.00½	.001¾		.001½	1,000
Justine	1													
Kimberly	1													
Millionaire	1	.001¾	.001¾	.001¾	.002	.001¾	.002	.00 3¾	.002	.001¾	.002	.002		4,000
Orient	1	.001	.001¾			.001	.00 3¾		.001¾					6,0 0
Pilgrim	1	.005¾	.006¾	.005	.007					.004¾	0 7¾	.006	.0 7¾	1,000
Qu'n Victoria	1	.004	.004¾	.004	.004¾	.004	.004¾	.004	.004¾	.004	.0 3	.004¾	.004¾	12,000
Reno	1	.03¾	.04¾	.03¾	04¾	0 3¾	.04	.03¾	.03¾	.03¾	.04	.03¾	.04	11,000
Royal Age	1	.004¾	.004¾	.004	.004¾	.004	.004¾	.004	.004¾	.003¾	.005	.0 4	.004¾	28,000
Senator	1	.002¾	.0 2¾	.002	.003	.002	.002¾	.02	.002¾	.0 2	.002¾	.0 2	.002¾	2,000
Sentinel	1	.002¾	003	00 3¾	.003	.002¾	.003	0 2¾	.002¾	.002¾	.003	.002¾	.003	5,000
Unity	1		.004½	.001¾	.001			.002¾	.0 3¾	.0 2	.004		.004¾	2,000
Uni. Act.														
Ætna	1	006	.006½	0 6¾	005¾	003¾	003¾	.003	.005¾	.0 6	.006¾	.006	.006¾	2,000
Arcadia	1		.005		.005	005¾	.014			.0 4¾	.00	.006¾	.00	1,000
ArcadiaCon	1		.005	.006¾	.007¾	.05¾	.06¾	.06¾	.07¾	.06	0 3¾	.06¾	.06¾	5,000
Arg. J	1	.40	.45			.32½	41	.40	42	40	.42	.40	.43	100
Bob Lee	1	.011	013	.01	.0 3¾	.0		.01	.01¾	.01	.0 3¾	.01		8,000
Bost. & C.C.	1	.001		.007½	.01¾	.007	.009			.007	.007¾	.0 6¾	0 9	24,0 0
Chimb'razo	1	.006¾	.006¾	.006	.006¾	.006	.0 7	.00 3¾	.006¾	.005¾	.007	.005¾	.007	1,000
C. C. & M.	1	.02¾	.03¾	.02¾	.03	.02¾	.03	.02¾	.03¾	.02¾	.03	.02¾	.03	3,000
C K. & N.	1	01	.01¾	.0105	.011	.01	.01¾	.01	.01¾	.01¾	.01¾	.0145	.0145	18,0 0
Cr. & C. C.	1													
Elkton	1													
Enterprise	1													
Goldstone	1	.006				.006	01	.007¾	0 7¾	0 6¾	.007¾	.006¾		1,000
Jack Pot	1	.07¾	.07¾	0 6½	.07	.06¾	0 7¾			.07¾	.07¾	.07½	.07¾	17,000
Lit. Dorritt	1													
Mt. Beauty	1													
Old Gold	1	.006¾	006¾	.004¾	.006¾	.006¾	005¾			.006¾	007	.007¾	.008	34,000
Portland	1			1.20	1 32	1 27	1 30	1.30	1.32	1.21	1 30	1 20		1,1 0
Santa Fe	1	.001	.004	.001¾	.001¾	.001¾	.002¾	.00¾		.001¾	.003	.001¾	.002¾	5,000
Tamarack	1	.02¾	.02¾	02	.03¾	0 3¾		.03¾	.02¾	.02¾	.03¾	.02¾	.02¾	89,0 0
Union Gold	1	.24¾	.29	.25	.25¾	.24	.25	.25	.26	.25¼	.26	.25¼	.26	3,,00
Va. M.	1	.04¾	.04¾	.04	.04½	04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.05¼	15,000
Wh of For.	1	.06	08											1,000
Work	1	.07¾	.03	.07	.07¾	.07¾	08¼	.07¾	.08¾	.07¾		.07¾	.08¾	2.0

* Official quotations Colorado Mining Stock Exchange.
Shares sold, listed, 510,7 0; unlisted, 223 90 . Total, 74 ,6 0.

SALT LAKE CITY, UTAH.* Week ending Jan. 30.

STOCKS.†	Par value.	Bid.	Asked.	Actual selling price.	STOCKS †	Par value	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.81	$0.85	$0.82	Horn Silver	$25	$1.40	$2.00	
Alliance	1	.15	.35		Little Pittsburg		.02½	.03	.03¾
Am. Nat. Gas					Lucky Bill		.16	.18	.18
Anchor	20	1 25	1 75		Malvern		.20	25	
Annie		.04	.06		Mammoth	25	1.90	2 20	2.10
Bogan	1	.05	.10	.10	Mercur	25	.15	7 35	7.25
Brick Con		35	.50		Morgan	125	.10	.25	
Bullion Beck & C.	10	7 50	8.25	7.50	Northern Light		.90	.95	92
Centen'l Eureka	50	65.00			Ontario	100	9.50	10.00	10.00
Dalton	5	.02¾	.03	.03¾	Overland		.20	.30	
Dalton & Lark		25	.40	30	Rover	10	.40	.45¾	.45
Daly	20	5.00	5.50	5 25	Silver King	20	16.00	18.00	17.50
Daly West	20	7.90	8.15	8.00	Sioux Con	10	80	1.00	
Eagles	10	.03	06		Sunshine	10	.80	1.00	.80
East Golden Gate					Swansea		1.75	2.00	1 90
Four Aces		.14	.17	.16	So. Swansea		1.40	1.60	1 55
Galena	10	1.15	1.30	1.20	Tetro	1	.03½	.03¾	
Geyser		1.00	1.25	1.10	Utah		.90	1.15	1.00
Herschel		.08	10		Utah Con	1	50	.85	

* Special Report of James A. Pollock. † All the companies are located in Utah.

PHILADELPHIA PA.*

NAME OF COMPANY.	L'cation.	Par Val'e	Jan. 28. H.	Jan. 28. L.	Jan. 29. H.	Jan. 29. L.	Jan. 30. H.	Jan. 30. L.	Feb. 1. H.	Feb. 1. L.	Feb. 2. H.	Feb. 2. L.	Feb. 3 H.	Feb. 3 L.	Sales
Cambria Iron	Pa.						45.00				44.00				23
Choc. & Gulf. Ctfs	I.T.	50					7.75	7.50	7 50				8.25	7 75	1,761
Hunt & Br. Top	Pa.	50					19 50		19.50						50
" pref	"	50	48 75		48.50				48.25	48.00	48.00	47.50			84
Lehigh C. & N.	"	50	41 00	40.00	41 00	41.00	41.5	40 50	41 5	40.75	40 75	40 50	40.75	41.50	50
Lehigh Valley	"	50	29.13	29.00	29.50	29.13	29.50	29 0	29 50	29.00	29.25	29 13	29.50	29.00	1,189
Li'le Schuylkill	"	50									51.0				2
Penna. R. R.	"	50	52.00	51 88	52.13	51 88	52.13	52.00	52.13	51.88	52 13	52.00	52.50	52 25	3,488
Pa Salt Mfg. Co.	"	50													
Penna. Steel	"				29.5										20
United Gas Im	Can.		73 00		73.00	72 88	73.00	72.88	73.00	73.13	74.88	74.50	74.75	74.50	2,522
Welsb. of Can	Pa.		2 13				2.13								155
Weisb Com'l	"														
" Com pr.	"												63.5		10
" Light	"		48.75		47 00	46 50	48.75		46 75	46.50	46.75		47.0	46.75	379
West. Coal	"		48.25												15

* Official quotations Philadelphia Stock Exchange. Total sales. 9,7 8.

HELENA, MONT.* Week ending Jan. 21.

NAME OF COMPANY.	Location.	Company's office	Par value.	Bid.	Asked	Shares sold.	Price.
Am. Dev. & M. Co.	Mont. & Idaho	Butte, Mont.	$1	$0.90	$1.00	4 000	.90-.95
Bald Butte	L. & Cl'ke Co.	Helena "	1		2 25		
Bi-Metallic	Granite "	St. Louis, Mo.	5		1 75		
Combination	" "	" "	10		.35		
Granite Mt	" "	" "					
Helena & Victor	Missoula "	Helena, Mont.	5				
High Ore	Jefferson "	Butte "					
Iron Mountain	Missoula "	Helena "	10	.37½	40	1,6 0	.40-.41
Judge	Meagher "	" "			.10		
Merrill (Gold)	Jefferson "	Butte "	1				
Ontario	DeerLodge "	Helena "	1				
Yellowstone	Meagher "	" "	5		.12½		

* Special Report of Samuel K. Davis. Total shares sold, 5,6 0.

PITTSBURG, PA.* Week ending Feb. 2.

NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price.	NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price
COAL:						NAT. GAS:					
Mansfield	Pa.	50				Allegheny	Pa.	100			
N.Y. & C. Gas C.	"	50				Chartiers Val	"	100			
MINING:						Manufacturers	"	100			
Ent'prise	Colo.	5				Peoples' Nat. Gas	"	50			
Lustre	Mex.	10				Peoples' Pipeage	"	25	13½	14	
Silverton	Colo.	10				Pennsylvania	"	50			
MISCELLANEOUS:						Philadelphia	"	50	16¾	17½	
Carborundum	Pa.	100				Wheeling	W.V.	50	17½	18	

* Official quotations Pittsburg Stock Exchange

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.				Dividends. Total Paid.	Dividends. Date and Amount of Last.			
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*					$693,500	Oct..	1895	.04
2	Ætna Cons., q.	Cal ..	500,000	100,000	5	*					80,000	Dec..	1896	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5						191,031	Jan ..	1897	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*					3,100,000	Jan ..	1897	.37½
5	Anaconda Copper.	Mont.	30,000,000	1,200,000	25						2,250,000	Nov..	1896	1.25
6	Anchoria-Leland, g.	Colo..	600,000	600,000	1	*					36,000	Jan ..	1897	.01
7	Argentum Juniata, g.s.l	Colo..	2,600,000	1,300,000	2	*					39,000	July..	1895	.03
8	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*					900,000	July..	1894	.10
9	Atlantic, c.	Mich.	1,000,000	40,000	25						740,000	Feb..	1897	1.00
10	Aurora, i.	Mich.	2,500,000	100,000	25	*					700,000	April.	1896	.50
11	Bald Butte.	Mont.	250,000	250,000	1	*					470,000	June.	1896	.03
12	Bangkok-Cora Bell, s. l.	Colo..	600,000	600,000	1						107,510	July..	1896	.01
13	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*					67,500	Dec..	1891	.00¾
14	Belden, F. E., m.	N. H.	500,000	100,000	5	*					217,000	Jan ..	1896	.04
15	Big Six, g. s.	Colo..	500,000	500,000	1						2,500	May..	1896	.00½
16	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*					1,630,000	June.	1893	.10
17	Boston & M. Cons., g.s.c	Mont.	3,750,000	150,000	25	*					5,375,000	Feb..	1897	3.00
18	Brotherton, i.	Mich.	2,000,000	80,000	25	*					120,000	Mar..	1893	.50
19	Bullion, Beck & Champ.	Utah.	1,000,000	100,000	10	*					1,967,000	Jan ..	1897	.20
20	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25						48,350,000	Feb..	1897	15.00
21	Cariboo.	B.C..	800,000	800,000	1						125,410	Dec..	1896	.02
22	Centen'l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00		1,890,000	Jan ..	1897	1.00
23	Central, c.	Mich.	500,000	20,000	25	100,000	Oct...	1861	.65		1,970,000	Feb..	1891	1.00
24	Charleston, p. r.	S. C..	1,000,000	10,000	100	*					140,000	Dec..	1893	2.50
25	Clay County, g. s. c.	Colo..	60,000	60,000	1	*					52,000	Nov..	1891	.02
26	C. O. D., g.	Colo..	500,000	500,000	1	*					25,000	Mar..	1896	.01
27	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10						340,000	June.	1893	.06
28	‡Cons. Cal. & Va., g. s.	Nev..	21,600,000	216,000	100	4,960,130	Jan ..	1897	.25		3,898,800	Feb..	1895	.25
29	Cons. New York, g. s.	Nev..	10,000,000	100,000	100	168,000	Jan ..	1896	.05		10,000	Feb..	1893	.10
30	Coptis, g. s.	Nev..	10,000,000	100,000	100						77,000	Feb..	1895	.01
31	Cortez, Ltd., s. g.	Nev..	1,500,000	300,000	5						735,000	Feb..	1893	.15
32	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1						87,500	Aug..	1896	.00½
33	Daly, s. l.	Utah.	3,000,000	150,000	20						2,887,500	Aug..	1896	.25
34	†Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	*					1,240,000	Aug..	1896	.50
35	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*					2,250,000	Oct..	1896	.25
36	Derbec Blue Gravel, g.	Cal ..	10,000,000	100,000	100	110,000	June.	1893	.10		280,000	Aug..	1891	.10
37	Dexter, g. s.	Nev..	1,000,000	100,000	10	8,000	June.	1892	.08		100,000	Aug..	1893	.33
38	Elkhorn, s.	Mont.	1,000,000	200,000	5						1,212,000	June.	1895	.06
39	Elkton Cons., g.	Colo..	1,250,000	1,250,000	1						191,960	Jan ..	1897	.02
40	Enterprise, g. s.	Colo..	2,500,000	500,000	5	*					825,000	May ..	1893	.25
41	Eureka Cons., g. s. l.	Nev..	1,000,000	50,000	20	567,500	Feb..	1897	.25		5,112,500	Jan ..	1892	.25
42	Evening Star, s. l.	Colo..	500,000	50,000	10	*					1,437,500	Dec..	1889	.25
43	Florence, s.	Mont.	2,500,000	500,000	5	*					118,096	Jan ..	1897	.01
44	Franklin, c.	Mich.	1,000,000	40,000	25						1,240,000	Jan ..	1894	2.00
45	Galena, g. s. l.	Utah.	1,000,000	100,000	10						71,000	Jan ..	1897	.05
46	Garfield-Grouse, g.	Colo..	1,200,000	1,200,000	1	*					24,000	Dec..	1896	.01
47	Gold Coin, g. s.	Colo..	1,000,000	200,000	5	*					120,000	Feb..	1897	.10
48	Golden Eagle, g.	Colo..	1,000,000	1,000,000	1	*					10,000	Sept..	1896	.01
49	Golden Fleece, g. s.	Colo..	600,000	600,000	1	*					563,179	Dec..	1896	.01
50	Gold & Globe, g.	Colo..	750,000	750,000	1						36,000	Aug..	1896	.00⅓
51	Gold Rock, g. s. c.	Colo..	500,000	500,000	1	*					28,750	Dec..	1891	.01
52	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*					12,120,000	July..	1892	.20
53	Granite, s. l.	Idaho	500,000	200,000	2.50	*					83,400	Nov..	1890	.10
54	Gt. West'n Quicksilv., q.	Cal ..	5,000,000	50,000	100						388,366	Nov..	1893	.10
55	Harquahala, g.	Ariz..	1,500,000	300,000	5						126,000	Nov..	1894	.12
56	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*					2,160,000	Jan ..	1897	.50
57	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5						475,000	Aug..	1896	.04
58	Holmes, s.	Nev..	10,000,000	100,000	100	345,000	Mar..	1890	.25		75,000	April.	1892	.25
59	Homestake, g.	S. D..	12,500,000	125,000	100	200,000	July..	1878	1.00		6,118,750	Jan ..	1897	.25
60	Hope, s.	Mont.	1,000,000	100,000	10	*					662,252	Feb..	1897	.10
61	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*					5,130,000	Jan ..	1896	.12½
62	Iowa.	Colo..	1,000,000	1,000,000	1						60,000	Dec..	1896	.01
63	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*					492,500	Nov..	1896	.06
64	Iron Silver, s. l.	Colo..	10,000,000	500,000	20	*					2,500,000	April.	1889	.20
65	Isabella, g.	Colo..	2,250,000	2,250,000	1						202,500	Sept..	1896	.01
66	Jack Rabbit, g.	Cal ..	10,000,000	100,000	100	118,000	April.	1894	.02		260,000	April.	1891	.10
67	Jay Hawk, g.	Mont.	1,425,000	285,000	5						33,375	Dec..	1892	.12
68	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct...	1887	1.00		120,000	Dec..	1895	1.00
69	Kennedy, g.	Cal ..	10,000,000	100,000	100						1,796,000	Aug..	1895	.48
70	Leadville Cons., s. l.	Colo..	4,000,000	400,000	10	*					316,000	Feb..	1893	.03
71	Little Chief, s. l. i-o.	Colo..	10,000,000	200,000	50	*					820,000	Dec..	1890	.05
72	Maid of Erin, g. s. c. l.	Colo..	3,000,000	600,000	5	*					740,000	Nov..	1895	.02
73	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*					1,150,000	Nov..	1896	.05
74	Mayflower Gravel, g.	Cal ..	1,200,000	60,000	20						166,897	Dec..	1895	.10
75	May-Mazeppa Con., l. s.	Colo..	1,000,000	1,000,000	1	*					170,000	Oct...	1891	.03¾
76	Mercur, g.	Utah.	5,000,000	200,000	25	*					600,000	Jan ..	1897	.12½
77	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*					3,240,009	July..	1896	1.50
78	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	20,000	Jan ..	1891	.02		4,080,000	Jan ..	1895	.05
79	Monitor, g.	S. D..	2,500,000	250,000	10						45,000	Oct...	1890	.03
80	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*					2,890 637	Oct...	1895	.06¼
81	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*					520,000	Jan ..	1897	1.00
82	Moon Anchor Gold.	.....	600,000	600,000	1	*					24,000	July..	1896	.01
83	Moose, g.	Colo..	600,000	600,000	1						186,000	Jan ..	1896	.01
84	Morning Star Cons., s. l.	Colo..	1,000,000	100,000	10	*					1,025,000	Dec..	1891	.25
85	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	145,000	Nov..	1896	.10		225,000	Aug..	1893	.25
86	Mt. McClellan, g. s. l.	Colo..	1,250,000	250,000	5	*					21,936	June.	1891	.03
87	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1						30,000	Oct...	1896	.00½
88	Napa, q.	Cal ..	700,000	100,000	7	*					820,000	Jan ..	1897	.10
89	New Elkhorn.	Colo..	1,500,000	300,000	5						72,000	Sept..	1896	.24
90	New Guston, g. s. c.	Colo..	550,000	110,000	5	*					1,198,120	Oct ..	1892	.25
91	New Hoover Hill, g.	N. C..	300,000	120,000	2.50	*					22,500	Dec..	1885	.20
92	N.Y. & Hon. Rosario, s.g.	C. A..	1,500,000	150,000	10	*					690,000	Jan ..	1897	.10
93	North Banner, g. s.	Cal ..	1,000,000	100,000	10	21,794	Oct...	1896	.02		20,000	July..	1891	.05
94	North Com'wealth, s.	Nev..	10,000,000	100,000	100	85,000	April.	1890	.25		25,000	June.	1891	.25
95	North Star, g.	Cal ..	2,000,000	200,000	10	20,000	June.	1885	.02		450,000	June.	1893	.50
96	Nugget, g.	Colo..	1,000,000	1,000,000	1	*					10,000	Jan ..	1895	.00½
97	Ontario, s. l.	Utah.	15,000,000	150,000	100						13,370,000	Jan ..	1897	.10
98	Osceola, c.	Mich.	1,250,000	50,000	25	*					2,122 500	Feb..	1897	1.00
99	Pacific Coast Borax, b.	Cal ..	2,000,000	20,000	100						422,500	July..	1893	1.00
100	Parrot, c.	Mont.	2,300,000	230,000	10	*					1,622,215	June.	1894	.05
101	Petro, s.	Utah.	1,000,000	10,000	100						17,500	July..	1891	.75
102	Pharmacist, g.	Colo..	1,200,000	1,200,000	1						80,000	Jan ..	1893	.01
103	Portland, g.	Colo..	3,000,000	3,000,000	1	*					893,000	Jan ..	1897	.01
104	Quicksilver, pref., q.	Cal ..	4,300,000	43,000	100	*					1823,911	June.	1891	1.25
105	" com., q.	Cal ..	5,700,000	57,000	100	*					643,867	July..	1882	.40
106	Quincy, c.	Mich.	1,250,000	50,000	25	*					9,070,000	Feb..	1897	8.00
107	Reed National, s.	Colo..	500,000	500,000	1	*					45,000	Dec..	1890	.01
108	Robinson Cons., s. l.	Colo..	10,000,000	200,000	50	*					585,000	Mar..	1886	.05
109	Running Lode, g. s. l.	Colo..	1,000,000	1,000,000	1	*					37,000	June.	1893	.00⅒
110	St. Joseph, l.	Mo..	2,500,000	250,000	10						2,524,000	Dec..	1895	.25
111	Silent Friend, g. s. l.	Colo..	500,000	500,000	1	*					60,000	Aug..	1891	.25
112	Silver King, s.	Ariz..	10,000,000	100,000	100	272,858	Mar..	1897	.25		1,950,000	July..	1887	.25
113	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan ..	1897	.02		900,000	Jan ..	1897	.25
114	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*					300,137	Dec..	1891	.04
115	Small Hopes, s.	Colo..	5,000,000	250,000	20	*					3,275,000	Mar..	1896	.10
116	‖Smuggler Union, g. s.	Colo..	5,000,000	50,000	100						150,000	Oct...	1896	1.00
117	§Standard Cons., g. s.	Cal ..	20,000,000	200,000	100						3,717,868	June.	1895	.10
118	Swansea, g. s. l.	Colo..	600,000	60,000	10	*					39,000	Sept..	1892	.10
119	Tamarack, c.	Mich.	1,250,000	50,000	25						4,770,000	Dec..	1896	3.00
120	Teal & Poe, s. l.	N. M.	150,000	150,000	1	*					9,000	Nov..	1891	.01½
121	Tom Boy, g.	Colo..	2,000,000	200,000	10	*					410,000	Mar..	1896	.20
122	Trinity River, g.	Cal ..	500,000	500,000	1	*					15,000	July..	1893	.00½
123	United Verde, c.	Ariz..	3,000,000	300,000	10	*					562,500	Dec..	1893	.25
124	Union, g.	Colo..	1,250,000	1,250,000	1						73,000	June.	1896	.01
125	Union Leasing.	Colo..	500,000	500,000	1						340,000	July..	1895	.04
126	Utah.	Utah.	1,000,000	100,000	10	*					175,000	Nov..	1896	.02
127	Victor, g.	Colo..	1,000,000	200,000	5	*					705,000	Dec..	1896	.10
128	War Eagle.	B.C..	500,000	500,000	1	32,500	Dec..	1894			187,000	Oct...	1896	.06
129	Woodside.	Utah.	1,000,000	100,000	10						25,000	Oct...	1889	.25
130	Yankee Girl, s.	Colo..	1,300,000	260,000	5						520,000	July..	1891	.25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01½
2	Ajax, g.	Colo..	1,000,000	1,000,000	1				
3	Alamo, g.	Colo..	1,000,000	1,000,000	1				
4	Alice, g. s. c.	Colo..	5,000,000	5,000,000	1	*			
5	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
6	Allouez, c.	Mich.	2,000,000	80,000	25	1,440,937	June.	1894	.20
7	Alpha Cons., g. s.	Nev..	10,500,000	105,000	100	257,500	Sept..	1896	.10
8	Alta, s.	Nev..	10,080,000	108,000	100	3,590,560	Jan ..	1897	.05
9	American, c.	Idaho	5,000,000	500,000	10	*			
10	American Belle, g.s.c.	Colo..	2,000,000	400,000	5	*			
11	Anaconda, g.	Colo..	5,000,000	1,000,000	5				
12	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug..	1893	.20
13	Aola, g.	Colo..	1,000,000	1,000,000	1	*			
14	Argonaut Cons., g. s.	Colo..	1,000,000	1,000,000	1	*			
15	Atlantic Cable Cons.	Colo..	1,500,000	1,500,000	1	*			
16	Bahama, g.	S. D..	1,250,000	250,000	5	3,125	Sept..	1893	.00¼
17	Bankers, g.	Colo..	1,250,000	1,250,000	1	*			
18	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,312,420	Sept..	1896	.25
19	Belle Isle.	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
20	Ben Hur, g.	Colo..	900,000	900,000	1				
21	Blue Bell, g.	Colo..	500,000	500,000	1	*			
22	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July..	1893	.004
23	Bob Lee, g.	Colo..	1,200,000	1,200,000	1	*			
24	Bullion, s. g.	Nev..	1,000,000	100,000	100	3,040,000	Feb..	1897	.10
25	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10				
26	Burlington, g. s.	Cal..	10,000,000	100,000	100	3,000	May..	1896	.08
27	Buskhorn, g.	Colo..	900,000	900,000	1				
28	Butte Queen, g.	Cal..	1,000,000	100,000	10	16,000	Feb..	1893	.10
29	Calumet, g.	Colo..	1,400,000	1,400,000	1	*			
30	Central Lead, l.	Mo..	400,000	4,000	100	*			
31	Central North Star, g.	Cal..	1,000,000	100,000	10	10,000	July..	1893	.10
32	Challenge, s, g.	Nev..	5,000,000	50,000	100	800 000	Nov..	1896	.10
33	Chollar, g. s.	Nev..	11,200,000	112,000	100	2,021,600	July..	1896	.25
34	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*			
35	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*			
36	Columbine, g.	Colo..	1,000,000	1,000,000	1	*			
37	Confidence, g. s.	Nev..	2,496,000	24,960	100	1,636,974	Sept..	1896	.30
38	Cons. Imperial, g. s.	Nev..	5,000,000	50,000	100	2,082,000	Aug..	1896	.01
39	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*			
40	Creede & C. C., g.	Colo..	800,000	800,000	1				
41	CrippleCreekCons., g.	Colo..	2,000,000	2,000,000	1				
42	Crip. Cr'k Gold Expl'n	Colo..	1,800,000	1,800,000	1				
43	Dante, g.	Colo..	1,250,000	1,250,000	1	*			
44	Denver City, s.	Colo..	5,000,000	500,000	10	*			
45	Denver Gold, g.	Colo..	300,000	60,000	5				
46	Dickens-Custer, g. s..	Colo..	2,100,000	420,000	5				
47	Enterprise, g.	Colo..	800,000	800,000	1				
48	Eureka Con. Drift, g.	Colo..	500,000	500,000	1	90,000	Oct..	1892	.07
49	Exchequer, g. s.	Nev..	10,000,000	100,000	100	725,000	Dec..	1896	.05
50	Favorite, g.	Colo..	1,200,000	1,200,000	1	*			
51	Fortunatus, g. s.	Colo..	100,000	100,000	1	*			
52	Found Treasure, g. s.	Nev..	10,000,000	100,000	100	55,770	Jan ..	1892	.50
53	Franklin Gold, g.	Colo..	1,000,000	1,000,000	1	*			
54	Free Coinage, g.	Colo..	1,000,000	1,000,000	1	*			
55	Galena, l. s.	Idaho	500,000	500,000	1				
56	Garden City, g.	S. D..	2,500,000	250,000	10	2,898	Sept..	1891	.00½
57	Gem, g.	Cal..	10,000,000	100,000	100				
58	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July..	1896	.00⅛
59	Golden Age, g.	Colo..	1,000,000	1,000,000	1	*			
60	Golden Dale, g.	Colo..	2,000,000	2,000,000	1	*			
61	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,000	Aug..	1892	2.00
62	Gold Flat, g.	Cal..	1,000,000	100,000	10	13,000	Aug..	1893	.03
63	Gold King, g.	Colo..	1,000,000	1,000,000	1	*			
64	Gold Rock, g.	Colo..	1,000,000	1,000,000	1	*			
65	Gold Standard, g.	Colo..	1,000,000	1,000,000	1	*			
66	Gould & Curry.	Nev..	10,800,000	108,000	100	4,850,400	Jan ..	1897	.15
67	Hale & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,786,800	Jan ..	1897	.25
68	Hartshorn, g. s.	S. D..	1,250,000	250,000	5	8,750	Sept..	1891	.00½
69	Head Cent. & Tr., g. s.	Ariz.	2,000,000	200,000	10	22,824	Mar..	1892	.03
70	Hidden Treas., g. s..	Cal..	20,000	20,000	1	1,000	Nov..	1893	.05
71	Himalaya, s. l.	Utah.	1,800,000	180,000	10	10,000	Oct..	1892	.01
72	Idaho Co., Ltd., g.	Idaho	100,000	1,000	100	*			
73	Idlewild, g.	Cal..	1,000,000	100,000	10	*			
74	Inez, s. l.	Idaho	1,000,000	1,000,000	1	*			
75	Jack Pot, g.	Colo..	1,250,000	1,250,000	1				
76	Jackson, l.	Mich.	300,000	12,000	25	*			
77	Justice, g. s. c.	Colo..	500,000	500,000	1	*			
78	Keystone, g.	Colo..	1,500,000	1,500,000	1	*			
79	Kingman Silver, g. s.	Ariz..	10,000,000	100,000	100	5,000	Sept..	1891	.05
80	Lacrosse, g.	Colo..	1,000,000	100,000	10	*			
81	Lottie Gibson, g.	Colo..	1,000,000	1,000,000	1				
82	Matoa, g.	Colo..	5,000,000	1,000,000	5				
83	Mayflower, g.	Colo..	1,000,000	1,000,000	1	*			
84	Mexican, g. s.	Nev..	10,080,000	100,800	100	3,084,080	Nov..	1896	.20
85	Michigan Gold., g. s..	Mich.	2,500,000	100,000	25	40,000	Mar..	1892	.10
86	Milwaukee, s. l.	Idaho	500,000	500,000	1				
87	Modoc Chief, g. s. l..	Idaho	1,000,000	200,000	5	4,375	Jan ..	1892	.00½
88	Monarch, g.	Colo..	1,000,000	1,000,000	1				
89	Mutual, g.	Colo..	500,000	500,000	1				
90	Neath, g.	Colo .	1,000,000	100,000	10				
91	New Gold Hill.	N. C..	1,750,000	350,000	5				
92	New Viola, s. l.	Idaho	750,000	150,000	5	*			
93	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July..	1896	.10
94	Occidental Cons., g. s.	Nev..	10,000,000	100,000	100	453,652	Dec..	1896	.15
95	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar..	1892	.10
96	Oro Cache, g. s.	S. D..	1,250,000	250,000	5	6,250	July..	1893	.00½
97	Orphal Bell, g.	Colo..	1,000,000	1,000,000	1				
98	Overman Silver, g. s.	Nev..	1,152,000	115,200	100	4,188,560	Dec..	1896	.10
99	Pappoose, g.	Colo..	2,000,000	2,000,000	1	*			
100	Peer, s.	Ariz..	10,000,000	100,000	100	215,000	July..	1894	.05
101	Peerless, s.	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
102	Pine Hill, g.	Cal ..	1,000,000	100,000	10	25,000	Jan ..	1897	.05
103	Pioche Con., g. s. l.	Nev..	20,000,000	2,000,000	10	*			
104	Potosi, g. s.	Nev..	11,200,000	112,000	100	2,021,600	Nov..	1896	.05
105	Princess, g.	Colo..	1,000,000	1,000,000	1				
106	Puritan, g. s.	Colo..	1,500,000	150,000	10	*			
107	Quincy, c.	Colo..	3,000,000	300,000	10				
108	Red Mountain, s.	Colo..	300,000	60,000	5	22,500	Mar..	1891	.12½
109	Ruby & Dun., g. s. l.	Nev..	25,300	506	25	*			
110	St. Mary, c.	Mich.	1,000,000	40,000	25	4.000	July..	1895	.05
111	Savage, g. s.	Nev..	11,200,000	112,000	100	1,051,400	Jan ..	1897	.30
112	Seg. Belcher & M., g.s.	Nev..	10,000,000	100,000	100	340,000	Nov..	1896	.10
113	Silver Age, g. s. l.	Colo..	2,000,000	200,000	10	*			
114	Silver Hill, s.	Nev..	10,800,000	108,000	100	1,992,600	July..	1894	.05
115	Silver Queen, c.	Ariz..	5,000,000	200,000	25	*			
116	Silver State, g.	Colo..	700,000	700,000	1	*			
117	Siskiyou Con., s.	Cal ..	2,000,000	200,000	10	44,000	June.	1896	.01
118	Specimen, g.	Colo..	1,200,000	1,200,000	1				
119	Temonj, g.	Colo..	1,000,000	1,000,000	1				
120	Tombstone, g. s. l.	Ariz.	12,500,000	500,000	25	*			
121	Tornado Con., g. s.	Nev..	100,000	100,000	1	*			
122	Union Con., g. s.	Nev..	10,000,000	100,000	100	2,545,000	Sept..	1896	.20
123	Utah Cons., s.	Nev..	10,000,000	100,000	100	420,722	Feb..	1897	.05
124	Victory, g. s.	S. D..	1,250,000	250,000	5	2,625	Nov..	1896	.00½
125	Virginia M. Cons., g.	Colo..	1,000,000	1,000,000	1				
126	Waterloo, g.	Cal...	2,000,000	200,000	10	30,000